

671  
CALENDAR

OF THE

UNIVERSITY OF MICHIGAN

FOR

1879-80.

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ANN ARBOR:  
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1880.



ANN ARBOR PRINTING AND PUBLISHING COMPANY.

## PREFATORY NOTE.

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The general arrangement of the matter in the CALENDAR is the same this year as it was last year. The description of the work of the several Departments is first given, and the names of all the students follow at the end.

The work and the organization of the School of Mines are dropped. The description of the Courses in Civil Engineering and in Advanced Science is found in the chapter devoted to the Department of Literature, Science and the Arts, and the plan of grouping them and other kindred courses in a "Polytechnic School" is given up.

It will be observed that the Faculty of the Department of Literature, Science and the Arts has been enlarged. Consequently several new Courses are offered. In particular much more instruction is offered in Geology, Palæontology and Mineralogy. A new Chair, that of the Science and the Art of Teaching, has been established. Instruction in Sanscrit is now provided. In some of the other branches of learning more Courses are given than before. The number of Courses offered in this Calendar is more than one hundred and sixty.

In the Law School a new Professorship, known as the "Tappan Professorship of Law," has been established. The candidates for admission to the Law School are henceforth to be subjected to a preliminary examination to determine their fitness to enter the School.

In the Medical Schools from this time a three years' course of study is required for graduation. The Department of Medicine and Surgery has been provided by the Regents with a new clinical Amphitheatre. The Homœopathic Medical College is also provided with a Hospital and a clinical Amphitheatre by the avails of an appropriation made by the Legislature at its last session.

The Legislature also appropriated \$40,000 for a fire-proof Museum building, which will be completed in the summer of 1880, and \$20,000 for a central boiler-house and steam-heating apparatus by which several of the University buildings are now heated.

# ANNOUNCEMENTS FOR 1880-81.

1880.

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|---------------|--------|--|
| January       | 6.     | University Exercises resumed after Holiday Vacation.   |
| February      | 13.    | (Evening.) FIRST SEMESTER CLOSES.  |
| February      | 16.    | SECOND SEMESTER BEGINS.  |
| March         | 23.    | (Evening.) Recess of one week begins.  |
| March         | 24.    | THE LAW SCHOOL AND THE DENTAL COLLEGE CLOSE.<br>COMMENCEMENT.  |
| June          | 26-28. | <i>Examination of Candidates for Admission to the Department of Literature, Science and the Arts.</i>  |
| June          | 27.    | <i>Baccalaureate Address.</i>  |
| June          | 29.    | Class-Day.   |
| June          | 30.    | Alumni-Day.  |
| July          | 1.     | COMMENCEMENT IN THE DEPARTMENT OF LITERATURE, SCIENCE AND THE ARTS, THE DEPARTMENT OF MEDICINE AND SURGERY, THE SCHOOL OF PHARMACY, AND THE HOMŒOPATHIC MEDICAL COLLEGE. Summer Vacation begins. |
| Sept.         | 16-21. | <i>Examination of Candidates for Admission to the Department of Literature, Science and the Arts.</i>  |
| Sept.         | 22.    | FIRST SEMESTER BEGINS.   |
| Sept.         | 22.    | <i>Examination for admission to the School of Pharmacy.</i><br>First year's work begins.   |
| Sept. 27-Oct. | 1.     | <i>Examinations for Admission to the Department of Law.</i>  |
| Sept.         | 29-30. | <i>Examinations for Admission to the Department of Medicine and Surgery, the Homœopathic Medical College and the Dental College.</i>   |
| October       | 1.     | PROFESSIONAL SCHOOLS OPEN.   |
| November      | —.     | Thanksgiving Recess of three days, beginning Tuesday evening.  |
| December      | 17.    | (Evening.) Holiday Vacation begins.  |

1881.

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| January  | 4.  | Exercises resumed.                |
| February | 11. | (Evening.) FIRST SEMESTER CLOSES. |

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# EXAMINERS.

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\*The names of the Members of the Faculties (except the name of the President), are arranged in the following divisions: Professors, Assistant Professors, Lecturers and Assistants, each name being placed in its appropriate division according to seniority of appointment.

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MARK W. HARRINGTON, M. A.,

Professor of Astronomy and Director of the Observatory.

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Professor of Zoölogy and Curator of the Museum.

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\*Absent on leave.

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E. FRED WOOD, M. E.

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FERDINAND THUM,

Assistant in Chemical Laboratory.

JOHN L. IRWIN,

Assistant in Chemical Laboratory.

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# UNIVERSITY OF MICHIGAN.

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## THE UNIVERSITY AND THE STATE.

The University of Michigan is a part of the public educational system of the State. The constitution of the State provides for the perpetuation of the governing body of the Institution, the Board of Regents. They are elected for terms of eight years by popular vote. In accordance with the law of the State the University aims to complete and crown the work which is begun in the public schools, by furnishing ample facilities for liberal education in Literature, Science and the Arts, and for thorough professional study of Medicine, Law and Dentistry. Through the aid which has been received from the United States and from the State it is enabled to offer its privileges without charge for tuition, to all persons of either sex who are qualified for admission. Its relation to the public schools of the State has now become even closer and more vital than formerly, since under certain conditions the graduates of High Schools are received into the University without examination. While Michigan has endowed her University primarily for the higher education of her own sons and daughters, it must be understood that she also opens the doors of the Institution to all students, wherever their homes. Students from other States are asked to pay a larger admission fee than students from Michigan, but they receive their instruction and have access to all the advantages of life at the University, without incurring any charge for tuition. It is in this broad, generous and hospitable spirit that the University has been founded, and that it endeavors to do its work.

## ORGANIZATION OF THE UNIVERSITY.

The University comprises the Department of Literature, Science and the Arts, the Department of Medicine and Surgery, the Department of Law, the School of Pharmacy, the Homœopathic Medical College and the Dental College. Each of these Departments and Colleges has its Faculty of Instruction, who are charged with the special management of it. The University Senate is composed of all the Faculties, and considers questions of common interest and importance to them all.

In the Department of Literature, Science and the Arts, different lines of study lead to the attainment of the degrees of Bachelor of Arts, Bachelor of Science, Bachelor of Philosophy, Bachelor of Letters, Civil Engineer and Mining Engineer.\*

Post-graduate courses are provided for the graduates of this University, or for the graduates of any College or University who may desire to pursue advanced study whether for a second degree or not. Students who do not wish to become candidates for a degree may, if they are prepared to enter the University, pursue selected studies for such time, not less than one semester, as they may choose.

The School of Pharmacy is now established as a distinct School, and has a regular course of two years, leading to the degree of Pharmaceutical Chemist.

In the Professional Schools the instruction is given largely by lectures. Degrees are given to graduates as follows: In the Department of Medicine and Surgery, the degree of Doctor of Medicine; in the Department of Law, the degree of Bachelor of Laws; in the Homœopathic Medical College, the degree of Doctor of Medicine; in the Dental College, the degree of Doctor of Dental Surgery.

Students in any Department of the University may enter the classes in any other, upon obtaining permission from the Faculties of the respective Departments.

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\* After 1881 the degree of Bachelor of Philosophy will not be conferred, and the degrees of Civil Engineer and Mining Engineer will be conferred only as second degrees. The description of the Higher Degrees will be found in the Chapter devoted to the Department of Literature, Science and the Arts.

## THE LIBRARIES.

The Libraries of the University accessible to the students amount, in the aggregate, to about 36,000 volumes.

The General Library contains about 28,000 volumes, and over 8,000 pamphlets. In 1871 it was enlarged by the addition of the library of the late Prof. Rau, the distinguished Professor of Political Economy in the University of Heidelberg, Germany. The Rau Library was purchased and presented to the University by PHILIP PARSONS, Esq., of Detroit. It contains about 4,000 volumes and over 5,000 pamphlets. It is especially rich in European works on the Science of Government, Statistics, Political Economy, and cognate subjects. An annual appropriation of two thousand dollars for the enlargement of the University Library was made by the Legislature at its last session.

The Catalogue consists of two parts, a catalogue of titles on slips, arranged in the alphabetical order of the names of the authors, and a catalogue of the subjects treated in all the books and reviews and magazines in the Library. This catalogue is accessible to readers.

One hundred and twelve American and European periodicals are taken, and sixty magazines and newspapers, representing nearly every part of the country, are kept upon the tables by the Students' Lecture Association.

The Library is open every week day from 9 o'clock A. M. to 5 P. M., and from 7 P. M. to 9½ P. M., and is free to all persons.

The Medical Library, containing about 2,200 volumes, is in the room of the General Library. Thirty Medical Journals are regularly received.

The Law Library, kept in the second story of the Law Building, is open to the students of the Law Department nine hours daily. It contains about 3,500 volumes.

The two Literary Societies in the Department of Literature, Science and the Arts, have also good Libraries.

The Christian Association connected with the University has a well selected Library of moral and religious works. Donations to this Library would be gladly received.

## THE ASTRONOMICAL OBSERVATORY.

The Observatory was founded by donations from citizens of Detroit. Valuable additions and improvements have been made by means of funds contributed from the same source, and also by the Regents of the University and the city of Ann Arbor. The building consists of a main part, with a movable dome, and two wings. The east wing contains the large meridian circle presented by Henry N. Walker, Esq., of Detroit. It was constructed by the famous makers, Pistor & Martins, of Berlin, and is one of the largest and best of the kind. The same room contains a sidereal clock, made by Tiede, of Berlin, and the collimators for the meridian circle. The west wing contains the library of the Observatory, and the smaller instruments. One of these is a chronograph with Bond's new isodynamic escapement, for recording observations by the electromagnetic method. This wing connects with the residence of the Director. In the dome is mounted a large refracting telescope, with an object glass thirteen inches in diameter, constructed by the late Henry Fitz, of New York.

Through the liberality of the Legislature means have been provided for the erection of a small Observatory for the purpose of instruction, on the Observatory grounds near the main building. It will contain an equatorial telescope of six inches aperture, and a transit instrument, with zenith telescope attachment, so mounted as to be used either in the meridian or in the prime vertical. In the same enclosure is also a building containing computing rooms and rooms for observers, and a workshop where necessary repairs and attachments for the instruments can be made.

A set of self-registering meteorological instruments has recently been added. It consists of Hough's barograph and thermograph, Robinson's anemometer with Gibbons's self-registering attachment and an anemograph.

## THE MUSEUM.

By the liberality of the Legislature means have been furnished for the erection of a fire-proof Museum building. It

is now in process of erection. This building is in the Neo-Gothic style, and is one hundred and twenty feet long and forty-seven feet wide and is four stories high. It is expected that it will be ready to receive our collections in the summer or early autumn of 1880.

The collection in the University Museum are illustrative of Natural Science, Ethnology, Art, History, Agriculture, Anatomy and Materia Medica, and are constantly increasing. The whole of the valuable collection which Prof. STEERE made during his five years' explorations in South America, Formosa and the East Indies, has now become the property of the University. The following description will indicate the character of the collections now in the Museum :

#### I. NATURAL HISTORY.

I. The MINERALOGICAL collection comprises about 6,000 specimens. It embraces about 2,500 specimens (principally European) purchased of the late Baron LEDERER, and known as the LEDERER COLLECTION; and, besides others, a rich collection of the MINERAL SPECIES OF MICHIGAN, including all varieties of copper ore and associated minerals from the different localities of the Lake Superior mining district.

II. The collection in GEOLOGY consists of :

1. The large and complete series of lithological and palæontological specimens brought together by the State Geological Surveys, of which over a hundred fossil species have already become the types of original descriptions.

2. The WHITE COLLECTION, consisting of 1,018 distinct entries, and 6,000 specimens.

3. The ROMINGER COLLECTION, embracing about 2,500 entries and 6,000 specimens, mostly from the Mesozoic formations of Central Europe. This collection embraces about 500 specimens of Mesozoic Ammonites.

4. SMITHSONIAN DEPOSITS, consisting for the present of a collection of foreign and domestic specimens of building stones, and twenty-three specimens of fossils from the Upper Missouri.

5. MISCELLANEOUS DONATIONS AND COLLECTIONS, embracing

more than four cases illustrating the metalliferous regions of the Upper Peninsula, collected by Prof. WINCHELL.

An interesting collection of fossils, chiefly cretaceous, from the Yellow Stone Valley, presented by the late General CUSTER, U. S. A.

The entire Geological Cabinet is estimated to contain about 14,000 distinct entries, and 41,000 specimens.

III. The collections in Zoölogy are very large, and comprise :

1. A complete suit of Birds which visit Michigan, with most of the Mammals of the State ; a nearly complete series of the Reptiles found east of the Rocky Mountains ; 2,000 species of Mollusca, embracing all the land and fresh-water forms of the Northern and Western States, and a considerable collection of the Fishes and Radiata.

2. The TROWBRIDGE COLLECTION. This is a series of 1,856 entries (3,000 specimens) in most of the classes of the Animal Kingdom, made by Lieut. TROWBRIDGE, (formerly Professor in the University), upon the Pacific coast, with numerous additions from the interior and eastern portions of the Continent, supplied by the Smithsonian Institution.

3. A collection of about 5,000 Coleoptera and Lepidoptera from the estate of the late GEORGE L. AMES, M. D., of Niles.

4. SMITHSONIAN DEPOSITS, consisting of about 200 skins of Birds from the Arctic Zone ; 204 entries of Marine Shells from the Indo-Pacific and Panama, labelled by Mr. P. P. CARPENTER ; 81 entries of Unionidæ : 250 entries of miscellaneous shells ; in all, 535 entries of fresh-water and marine shells.

5. The BEAL-STEERE Zoölogical Collection, comprising about 25,000 insects, 1,500 shells, 8,000 birds, and numerous representatives of other groups ; total about 10,000 entries and 60,000 specimens.

6. A collection of specimens representing COMPARATIVE ANATOMY. This collection contains several perfect, typical skeletons, and comprises 250 species, and 1,000 specimens.

7. MISCELLANEOUS COLLECTIONS AND DONATIONS. The whole



number of entries in the Zoölogical Cabinet is about 23,250, and the whole number of specimens over 110,000.

IV. The BOTANICAL COLLECTION contains :

1. The plants of the State collected by the public surveys, and numbering about 1,175 species, 1,500 entries, and 9,000 specimens.

2. The HOUGHTON HERBARIUM, collected by the late Prof. DOUGLASS HOUGHTON, M. D., and presented to the University by his widow, the late Mrs. R. R. RICHARDS. It consists of 28 folio cases of dried and labelled plants from various parts of the United States, and is estimated to contain 1,800 species.

3. The SAGER HERBARIUM, presented by Prof. ABRAM SAGER, and containing about 1,200 species, and 5,000 specimens, collected mostly in the New England and Western States.

4. The Dr. AMES HERBARIUM, consisting of a serial collection of 7,000 specimens, and 10,500 duplicates, presented by the family of the late Dr. AMES of Niles, Michigan.

5. A collection of Alaskan plants, presented by Capt. W. H. DALL, of the U. S. Coast Survey.

6. A collection of 2,000 species of plants, presented by Prof. M. W. HARRINGTON.

7. A collection of 225 species of mosses from Central Europe, presented by Prof. PAUL REINSCH, Erlangen, Bavaria.

8. A collection of 408 species, over 800 specimens of Algæ, from Mr. HORACE AVERILL.

9. The BEAL-STEERE BOTANICAL COLLECTION, which comprises 500 species, 2,500 specimens, mostly ferns.

10. The ADAMS JEWETT COLLECTION, consisting of 2,500 species, 5,000 specimens. This collection was a part of the estate of the late ADAMS JEWETT, M. D., of Dayton, Ohio, and was presented (1868) by his heirs through H. S. JEWETT, M. D., his son.

11. The LEMMON COLLECTION of 460 species of California plants, presented by J. G. LEMMON.

12. A collection of 300 species from the AGRICULTURAL DEPARTMENT of Washington.

13. A collection of 3,000 German plants from S. S. GARRIGUES, State Salt Inspector, East Saginaw.

14. A collection of truncheons of different varieties of woods from the United States, South America, China and other countries.

15. A collection of the seeds of native and cultivated plants.

The whole Botanical Cabinet contains 10,000 species, 20,000 entries, and 70,000 specimens. The Geological, Zoölogical and Botanical Cabinets, together, are estimated to contain 60,000 entries, and 255,000 specimens.

## II. ARCHÆOLOGY AND RELICS.

This Department of the Museum contains various articles of domestic and warlike use among the North American Indians, and the Islanders of the South Pacific; numerous remains of the ancient Peruvians; many specimens of clothing, art, etc., of the Amazonian Indians, modern Peruvians, Chinese, Formosans, and natives of the East Indies and Alaska; and sundry relics and memorials of the enterprises of Peace as well as of our great Civil War. It seems eminently appropriate that the University of Michigan should make efforts to preserve memorials of the native tribes, so fast disappearing before the march of civilization; and it is earnestly hoped that this department of the museum may be deemed a suitable place of deposit for any such relics in the possession of our citizens. A number of interesting relics from the Pacific Islands have been added by the Smithsonian Institution.

Efforts are making to found in the University a collection illustrating the materials, processes, and products of Agriculture and Horticulture. The nucleus of such a collection already exists in—1st, The Botanical and Zoölogical Cabinets, and the Cabinets of Economical Geology; 2d, A collection of the seeds of cereals and other field and garden crops; 3d, An interesting collection of textile fibres and various substitutes for cotton, received from the Department of Agriculture at Washington.

## III. THE FINE ARTS AND HISTORY.

This collection was commenced in the year 1855, and at present comprises:

1. A gallery of Casts, in full size and in reduction, of the most valuable ancient Statues and Busts. These were mainly executed at the imperial modelling establishment of the Louvre, by Desachy, of Paris, and by the Brothers Micheli, of Berlin.

2. A gallery of more than two hundred Reductions and Models, in terra cotta and other materials. These represent Statues, Portraits, Busts, Vases, and other antiquities in the Museo Borbonico, and other European Museums. They were executed at Naples.

3. A gallery of Engravings and Photographic Views, executed in Italy and Greece, illustrating especially the architectural and sculptural remains of ancient Rome, Pompeii, Pæstum, Athens and Corinth.

4. The HORACE WHITE COLLECTION OF HISTORICAL MEDALLIONS, comprising—1st, Four hundred and fifty Casts from Antique Gems in the Royal Museum at Berlin, illustrative of Ancient History; 2d, Over five hundred Casts illustrative of Mediæval History and of the Renaissance Period; 3d, About four hundred Medallion Portraits of leading Personages in Modern History.

5. A collection has been commenced of engraved copies of the great masterpieces of modern painting, beginning with those prior to Raphael.

6. The Statute of Nydia, and of Ruth Gleaning, by Randolph Rogers.

7. In addition to the above are several copies of Modern Statues, Busts, and Reliefs, by Michael Angelo, Canova, Thorwaldsen, and others, the most valuable of which are copies in bronze of the Muses, and of the Augustino and Julian di Medici of Michael Angelo.

A Catalogue of this Museum has been prepared with great care by Prof. FRIKZE.

## IV. ANATOMY AND MATERIA MEDICA.

The University has become the owner of the valuable Anatomical Museum, formerly the property of Prof. FORD, the results of his labor for many years in the preparation and purchase of materials for the direct purpose of most successful teaching.

It embraces a valuable collection of bones, amply illustrating healthy as well as diseased conditions, likewise the various changes from infancy to old age.

It contains numerous skulls, teeth and other preparations of great interest and value; by which not only the structure, but also the various stages in the development of both temporary and permanent teeth are well illustrated; as well as many valuable exhibitions of diseases of the teeth and associated parts, furnishing the Dental student important aid in the prosecution of his studies.

The arterial preparations are numerous, embracing complete and partial dissections, well preserved, exhibiting the normal as well as many abnormal arrangements of vessels, and furnishing ample facilities for studying the vascular system.

There are also models in wax, papier maché, and plaster of various parts of the body which they serve best to illustrate; and the Museum is rich in whatever can best advance the interest of the student.

The valuable collection of Prof. SAGER, illustrating the comparative craniology, neurology and embryology of the Vertebrata, and also the pathology and anatomy of the diseases of women, has been added to the property of the University, and to it accessions are annually made.

The department of the Museum illustrative of Materia Medica consists of a very complete set of crude Organic Medicinal substances, embracing between five and six hundred specimens, imported from Paris, put up in beautiful glass-covered half-gallon jars, of uniform appearance, finely displayed and arranged according to their order in Natural History; besides about one thousand other specimens of simple Mineral and Vegetable Substances, and Pharmaceutical and Officinal

Preparations, Active Principles, etc., arranged in groups convenient for study.

Besides these actual specimens, Medical Botany is illustrated by between one hundred and two hundred large and finely colored Plates, framed and glazed, and displayed for observation.

All the above collections are arranged in galleries, for the purpose of rendering them accessible both to students and to visitors. The University affords a secure depository for objects of value and curiosity, and it is therefore to be hoped that the Museum will receive accessions by donations from various sources.

### EXPENSES.

The only charges made by the University are: To residents of Michigan, an admission fee of ten dollars, and the annual payment of twenty dollars; to those who come from other States or countries, an admission fee of twenty-five dollars, and the annual payment of twenty-five dollars. A by-law of the Board of Regents provides as follows:

Every student before entering any Department of the University, shall pay to the Treasurer the sum of ten dollars, if a resident of Michigan, and the sum of twenty-five dollars if from any other State or country, as a matriculation fee. Each student shall also pay to the Treasurer annually twenty dollars, if a resident of Michigan, and twenty-five dollars, if a resident of any other State or country, to be devoted to the payment of incidental expenses. Resident graduates are required to pay the same annual dues as undergraduates, and no student or graduate shall be allowed to enjoy the privileges of the University, except on presentation to the President of the Treasurer's receipt for all fees and dues specified in this or any other rule or regulation of the Board of Regents.

The name of no person shall be presented by any Faculty to the Board of Regents for a degree, till he has exhibited to the Faculty the receipt of the Treasurer for the payment of all dues, including the fee for diploma.

The admission fee is paid but once, and entitles the student to the privileges of permanent membership in any department of the University. The annual fee is paid the first year, and every year thereafter.

There are no dormitories and no commons connected with the University. Students obtain board and lodging in private families for from three to five dollars per week. Clubs are also formed, in which the cost of board is from one dollar and half to two dollars and a half per week.

It is proper to say, in answer to numerous inquiries, that the University does not undertake to furnish manual labor to students; yet a considerable number of students find in the city opportunities for remunerative labor.

Room rent varies from seventy-five cents to two dollars per week for each student.

The annual expenses of students in the Academic Department for the last few years, *including clothing and incidentals*, have been on the average, about \$370. The expenses of Law students and Dental students are from \$150 to \$200 per term of six months. The expenses of Medical students are greater, since their term continues nine months.

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## RELATION OF STUDENTS TO THE CITY GOVERNMENT.

Students are temporary residents of the city, and, like all other residents, are amenable to the laws. Whenever guilty of disorder or crime, they are liable to arrest, fine and imprisonment, and can claim no peculiar exemption from public disgrace and legal penalties.

## DEPARTMENT

OF

# Literature, Science and The Arts.

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## ADMISSION OF CANDIDATES FOR DEGREES.

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All candidates for admission must be at least sixteen years of age, and must present satisfactory evidence of good moral character.

### I. CANDIDATES FOR THE DEGREE OF BACHELOR OF ARTS.

Candidates for this degree will be examined in the following studies:

1. **ENGLISH LANGUAGE.**—Each candidate will be required to write an essay of not less than two pages (foolscap), correct in spelling, punctuation, capital letters, grammar, and division into paragraphs, on a subject to be assigned at the time of the examination. The subjects for 1880 will be taken from the following works: Shakespeare's *As You Like It*, or *Macbeth*; Scott's *Antiquary*, or *Bride of Lammermoor*; Hawthorne's *House of the Seven Gables*; Dickens's *David Copperfield*. Every applicant should be familiar with the story of at least four of these works.

In 1881 the subject will be taken from the following: Shakespeare's *Twelfth Night*, or *Othello*; Scott's *Guy Mannering*, or *Rob Roy*; Dickens's *Bleak House*; Hughes's *Tom Brown at Rugby*.

[In 1879 the subjects assigned for the applicants' choice were as follows: The Story of the Caskets, from the Merchant of Venice; The Story of Jeanie Deans, from the Heart of Midlothian; The Cheeryble Brothers, from Nicholas Nickleby.]

In order to secure the preparation above indicated, the following course is recommended to the preparatory schools: 1. A review of the elements of English Grammar during the last years of the preparatory course. 2. Daily recitation for at least one term in some such work as D. J. Hill's "Elements of Rhetoric and Composition," or A. S. Hill's "Principles of Rhetoric." 3. Weekly exercises in original composition for at least two years. A large proportion of those who seek admission to the University are found to be very deficient in their preparation in English.

2. **GEOGRAPHY.**—General facts of Physical Geography, the Political Geography of Europe and the United States, and Ancient Geography, particularly that of Italy, Greece and Asia Minor.

3. **HISTORY.**—In Grecian History, the first three books of Smith's History of Greece, exclusive of the chapters on Literature and Art; an outline of Roman History, from the foundation of the City to the Battle of Actium; (after 1880, Leighton's History of Rome, fifty-four chapters, to the accession of Augustus, or an equivalent will be required); an outline of the History of the United States to the close of the Revolutionary War.

4. **MATHEMATICS.**—*Arithmetic.*—Fundamental Rules, Fractions, Common and Decimal, Denominate Numbers, Percentage, Proportion, Involution and Evolution, and the Metric System of Weights and Measures.

*Algebra.*—Fundamental Rules, Fractions, Simple Equations, Elimination, Involution and Evolution, the Calculus of Radicals, Quadratic Equations, Ratio, Proportion, and the Progressions, and an Elementary knowledge of Logarithms; *i. e.* through Olney's Complete School Algebra, or an equivalent in other authors.

*Geometry.*—Plane, Solid and Spherical Geometry, *i. e.*, the first two parts of Olney's Geometry, or an equivalent in other authors.

5. **LATIN.**—A thorough preparation in all the elements of Latin Grammar. For this purpose the Latin Grammar of Harkness, or of Allen and Greenough is recommended.

*Prose Composition.*—Jones's Exercises in Latin Prose Composition, or Harkness's Introduction to Latin Composition from page 50 to page 166; or forty-four exercises in Arnold's Latin Prose Composition.

*Reading.*—Four books of Cæsar's Commentaries; six select Orationes of Cicero, and the whole of the Æneid; or the first six books of the Æneid and an amount either of prose or of poetry equivalent to the last six books.

The study of the first six books of the Æneid should be accompanied with that of Prosody.

In reading the last six books the principal aim should be to acquire



facility in translation, and increased knowledge of the Latin vocabulary. It is supposed that the student, already familiar with the style of Virgil, will be able to read this portion of the *Æneid* more easily and rapidly than an equal amount in any other text book.

The *Roman pronunciation of Latin* is recommended.\*

Four years, if possible, should be given to the above preparatory course in Latin.

6.—GREEK.—*Grammar*.—Hadley's or Goodwin's; the *Etymology* must be thoroughly mastered.

*Prose Composition*.—Jones's Exercises with special reference to the writing of Greek with the accents, and to the general principles of syntax. Arnold's Exercises are taken as an equivalent.

*Reading*.—Three books of Xenophon's *Anabasis*. The so-called continental sound of the vowels and diphthongs, and pronunciation according to the written accent, are preferred. In preparation Boise's *First Greek Lessons* will be found valuable.

Two full years of daily recitation in Greek are essential to success.

## II. CANDIDATES FOR THE DEGREE OF BACHELOR OF LETTERS. (LATIN.)

Candidates for this degree will be examined in French or in German, and in all the studies required for the admission of candidates for the degree of Bachelor of Arts, excepting what is above required in Grecian History, in paragraph 3, and what is included in paragraph 6, GREEK.

1. FRENCH.—A general knowledge of all the principles of French Grammar and of French construction is required, together with some experience in the reading of easy descriptive French. The following works are recommended: Duffet's *French Method*, or Fasquelle's *French Course*, or Otto's *French Grammar*. Hennequin's *Treatise on the French Verbs* should be used in connection with any of the above works. The amount of reading should be 75 pages. The following

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\*ROMAN PRONUNCIATION OF LATIN.—The University has adopted the following system of pronunciation, based upon the investigations of Corssen, and other eminent philologists, and now employed in its essential features in the Universities and leading schools of England, and in Harvard, Cornell, and other institutions of this country as being proved beyond question a close approximation to the Roman pronunciation in the time of Cicero.

### VOWELS.

#### Long.

a as in father.  
e as in they.  
i as in machine.  
o as in go.  
u as oo in too.  
y as i.

#### Short.

a as in amend, or in quaff, (not as in hat.)  
e as in met.  
i as in pity.  
o as in police, (not as in cot.)  
u as in pull, (not as in but.)

works are recommended: Hennequin's French Reading Lessons, or Duffet's French Literature, or Otto's French Reader, or Fasquelle's French Reader.

2. GERMAN.—Those who offer German should be prepared for examination upon the whole of Whitney's German Grammar, excepting the portions printed with the finest type, and excepting also §§ 393-425 and 447-469; also on exercises 1-29 in the supplement to the Grammar ("Exercises for translating from English into German"); and on 75 pages of Whitney's German Reader. If other text-books are used, an equivalent in kind and substance must be offered.

### III. CANDIDATES FOR THE DEGREE OF BACHELOR OF SCIENCE.

Candidates for this Degree will be examined in the following studies, *except that those who are to study Civil Engineering will not be examined in Botany or in Latin.*

1. ENGLISH LANGUAGE, GEOGRAPHY AND MATHEMATICS.—In all, same as candidates for B. A.

2. HISTORY.—Swinton's, or Freeman's, or Anderson's Manual of General History, or an equivalent.

3. FRENCH OR GERMAN.—Same requirements as for candidates for B. L. (Latin.)

4. NATURAL PHILOSOPHY.—Norton's Natural Philosophy or an equivalent.

5. BOTANY.—The Elements of Vegetable Anatomy and Physiology, as given in the first 27 chapters of "Gray's Lessons," or the First and Second Parts of Wood's "Class Book of Botany." An analysis and written descriptions of 50 species of Phanerogams.

6. ZOOLOGY.—The first Part of "Orton's Comparative Zoölogy," or its equivalent.

#### DIPHTHONGS.

In pronouncing the diphthongs the sound of both vowels is preserved:

ae as the word ay.

au as ow in power.

oe as oi in oil.

eu nearly like u in use.

u in ua, ue, etc., like w.

ei as in rein.

#### CONSONANTS.

c always as in can.

ch as k.

g always as in gun.

j always as y in young.

s always as in sin.

t always as in tin.

v either as French ou in oui, or like Eng. v.

There is still considerable diversity of opinion among scholars as to the correct sound of v, and though the sound of ou in the French oui, or practically the sound of our w, is given to this consonant here, the sound of English v may be given, if preferred. The other consonants are sounded as in English.

The rules for syllabication are the same as in the old pronunciation, where two consonants come together; but a single consonant between two vowels is to be joined in pronunciation with the latter.

7. **ENGLISH LITERATURE.**—Shaw's Manual of English Literature (Backus's edition), or Stopford Brooke's English Literature.

8. **CHEMISTRY.**—Nichols's Abridgment of Eliot and Storer's Manual, or an equivalent.

9. **LATIN.**—The examination will be on Jones's First Latin Book, or Harkness's Latin Reader, or an equivalent amount in other text books. It is expected that about a year's study will have been given to the subject. This requirement is made with the intention of securing a sufficient knowledge of Latin to enable students to understand and to use readily technical scientific terms in Latin, or derived from Latin. It is recommended to students to make themselves familiar with the Latin nomenclature of Gray's Botany, and also with that of any good text book in Zoölogy.

#### IV. CANDIDATES FOR THE DEGREE OF BACHELOR OF LETTERS.

Persons who have completed the English course in any one of the approved High Schools of Michigan may hereafter be admitted to the University on diploma. Students who have pursued the English course in other schools may be admitted on examination.

The following list of studies, substantially that of the best High Schools of Michigan, will indicate the scope of the preparation required. Text books are named simply to indicate amounts:

1. **GEOGRAPHY.**—Same as candidates for B. A.

2. **HISTORY.**—Swinton's Outlines of the World's History; Ridpath's History of the United States to the close of the Revolutionary War; Bright's History of England, Vol. I.; or Green's Shorter History, chapters I.-V., or the whole of Thompson or of Lancaster.

3. **MATHEMATICS.**—Arithmetic, including the Metric System; Olney's Complete Algebra, Olney's Geometry, Parts I. and II.

4. **SCIENCE.**—Botany and Zoölogy, same as for candidates for B. S.; Norton's Natural Philosophy; Nichols's Abridgement of Eliot and Storer's Manual of Chemistry; Dana's Text-Book of Geology; Physical and Political Geography of Europe and America; Dalton's Physiology; Martin's Civil Government.

5. **ENGLISH LANGUAGE.**—Examination same as for candidates for B. A.

6. **ENGLISH LITERATURE.**—Shaw's English Literature (Backus's edition.)

Students will be examined on subjects rather than on specified text-books. Applicants who have not pursued the exact course marked out above will be allowed to present other subjects as equivalents, provided they have the preparation necessary to enter upon the studies required for the degree of Bachelor of Letters, as those studies are taught in the University.

## ADMISSION OF STUDENTS WHO ARE NOT CANDIDATES FOR A DEGREE.

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Students who are not less than sixteen years of age, and who do not desire to become candidates for a degree, will be admitted to the University, provided they pass the examinations for admission required of the candidates for any degree.

Students who are not less than *twenty-one years of age*, and who do not desire to become candidates for a degree, may be admitted *without the examination* asked in the previous paragraph, provided they give satisfactory evidence to the Faculty that they can profitably pursue the studies they desire to take up.

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## ADVANCED STANDING.

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Candidates for advanced standing will be examined in the studies preparatory to admission to the University, and also in such undergraduate studies as they may ask to be credited with in advance.

## THE EXAMINATION FOR ADMISSION.

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An examination for admission to the Department of Literature, Science and the Arts, will take place on Saturday and Monday, June 26th and 28th, 1880, and another beginning on Thursday, September 16th, and continuing through the Friday and Saturday and Monday following. These examinations will begin at 9 o'clock A. M. of each day.

The candidate must be provided with credentials from his last instructor, or from the last institution with which he has been connected. These must be presented to the President at his office, before the candidate can enter upon the examination.\*

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\*Requests for specimen copies of examination papers are often sent to us. As our examinations for admission are chiefly oral, it is not practicable to comply with these requests.

## NOTICE TO PREPARATORY SCHOOLS.

A committee of the Faculty will visit once every year any Public High School in Michigan, on request of its School Board, and report its condition to the Faculty.

If the Faculty shall be satisfied from such report that the school is taught by competent instructors, and is furnishing a good preparation to meet the requirements for admission of candidates for any one or more of our degrees, then the graduates from *such preparatory course or courses*, will be admitted to the University without examination, and permitted to enter upon such undergraduate work as the approved preparatory studies contemplated.

They must present to the President within three months after their graduation, the diplomas of their School Board, certifying that they have sustained their examinations in *all* the studies prescribed for admission as candidates for some one of our degrees. They will also be required to appear at once in their places, otherwise they can be admitted only after examination.

The privilege of admission on diploma is limited to public schools in Michigan, and their School Boards must make the application annually.\*

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## COURSES OF INSTRUCTION OFFERED FOR 1879-80.

### ELECTION OF STUDIES.

1. The Faculty reserve the right to withdraw the offer of any study not chosen by at least six persons.
2. Each student may elect his studies and may pursue them in any order he may choose, subject only to the following restrictions.

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\* At the beginning of the University year 1879-80 students were received on diploma from the following schools: Ann Arbor, Battle Creek, Coldwater, Corunna, Detroit, East Saginaw, Fenton, Flint, Grand Rapids, Michigan Military Academy and Pontiac.

(a) If he is a candidate for a degree, he must at some time take all the studies which are "required" for the degree he seeks.

(b) Before entering on any study the student must give the Professor in charge satisfactory evidence that he is prepared to pursue it with advantage. It will be seen below that each Professor has specified what studies precede others in his department.

(c) The Faculty will require a student to drop a part of his work at any time, if in their opinion he is undertaking too much, or to take additional work, if they think that he is not sufficiently employed.

(d) No student will be allowed to elect merely a part of a Course without special permission of the Faculty.

(e) No credit will be allowed to a student for work in any Course, unless the election of the work is formally made and reported to the Secretary of the Faculty, before the work is begun.

(f) Students will be asked to avoid a conflict of hours by conforming their choice of studies to the Scheme of Lectures and Recitations which will be issued each semester.

3. After matriculation, a student cannot, without special permission of the Faculty, be admitted to examination in any one of the Courses given, until he has received in the University the regular instruction in such Course.

4. The student is urged to make his choice of studies with care, and with reference to some plan, and to take the advice of judicious friends, if necessary. The members of the Faculty will be ready to render assistance in this regard.

## I. THE CLASSICS.

### I. GREEK—FIRST SEMESTER.

1. Lysias; Athenian History; Greek Moods and Tenses. Sec. I., *Monday and Thursday*, 10½–11½; *Tuesday and Friday*, 8½–9½; Sec. II., *Mon., Tues., Thurs., Fri.*, 11½–12½. Asst. Prof. PATTENGILL.
2. Thucydides (Sicilian Expedition). *Tues., Wed., Fri.*, Sec. I., 9½–10½; Sec. II., 10½–11½. Asst. Prof. PATTENGILL.

3. Demosthenes (de Corona); Lectures on the Greek Orators. Sec. I., *Mon., Wed., Fri.*, 2-3; Sec. II., *Tues., Thurs., Fri.*, 3-4. Prof. D'Ooge.
4. Plato (Gorgias); Lyric Anthology; Euripides (Medea). *Mon., Wed., Thurs.*, 11½-12½. Prof. D'Ooge.
5. Greek Grammar and Selections from the Anabasis. *Friday*, 11½-12½. Prof. D'Ooge.
11. Herodotus (Bk. VII.). *Tuesday and Thursday*, 2-3. Prof. D'Ooge.

## SECOND SEMESTER.

6. Homer (Odyssey). *Mon., Tues., Wed., Thurs.*, Sec. I., 10½-11½; Sec. II., 11½-12½. Asst. Prof. PATTENGILL.
7. Sophocles (Antigone); Æschylus (Prometheus). *Tues., Wed., Thurs., Fri.*, 10½-11½. Prof. D'Ooge.
8. Lucian. (Selections). *Wednesday and Friday*, 8½-9½. Asst. Prof. PATTENGILL.
9. Aristotle (Selections from the Ethics); Aristophanes (Acharnians); Lectures on the Greek Drama. *Mon., Wed., Thurs.*, 11½-12½. Prof. D'Ooge.
10. Greek Prose Composition; Book I. of the Iliad with special reference to the philological peculiarities of the Epic dialect. *Friday*, 11½-12½. Prof. D'Ooge.
12. Sophocles (Electra); Aristophanes (Frogs). *Tues., Wed., Thurs., Fri.*, 9½-10½. Asst. Prof. PATTENGILL.
13. History of Greek Literature and Art. *Tuesday*, 4-5. Prof. D'Ooge.  
*All students, except those who are admitted to advanced standing, will be required to pursue Course 1 before passing on to any of the other Courses, which may be taken by the student in the order he prefers.*

*Courses 5 and 10 are designed for those who intend to teach.*

*Of Courses 7 and 12 only one is required, and the student may choose between them.*

*Course 13 is required of all who have not pursued this study, and who did not take Course 8 last year.*

## II. LATIN—FIRST SEMESTER.

1. Terence; Latin Grammar; Latin Prose Composition. *Mon., Tues., Wed., Fri.*, Sec. I., 2-3; Sec. II., 3-4; Sec. III., 4-5. Asst. Prof. ELISHA JONES.
2. Quintilian (10th Book); Odes of Horace; Lectures on Roman Literature. *Mon., Tues., Wed., Thurs.*, Sec. I., 10½-11½; Sec. II., 11½-12½. Prof. FRIEZE.
3. Pliny's Letters. *Friday*, 10½-11½. Prof. FRIEZE.

4. Lectures on Classical Antiquities and Art. *Monday and Wednesday, 3-4.* Prof. FRIEZE.
5. Teachers' Course. *Friday, 4-5.* Prof. FRIEZE.
13. Histories of Tacitus. *Time to be arranged with students.* Prof. FRIEZE.

## SECOND SEMESTER.

6. Livy; Satires of Horace. *Mon., Tues., Wed., Fri.,* Sec. I., 2-3; Sec. II., 3-4; Sec. III., 4-5. Asst. Prof. ELISHA JONES.
7. Odes and Epodes of Horace. *Tuesday and Thursday, 10½-11½.* Prof. FRIEZE.
8. Horace (Ars Poetica); Juvenal. *Mon., Wed., Fri.,* Sec. I., 9½-10½; Sec. II., 10½-11½. Asst. Prof. ELISHA JONES.
9. Tacitus (Germania and Agricola). *Mon., Wed., Fri., 10½-11½.* Prof. FRIEZE.
10. Cicero's Tusculan Disputations. *Tuesday and Thursday, 11½-12½.* Prof. FRIEZE.
11. Lectures on Classical Antiquities and Art. *Wednesday, 3-4.* Prof. FRIEZE.
12. Teachers' Course. *Friday, 4-5.* Prof. FRIEZE.
14. Essays of Seneca. Prof. FRIEZE.

*Course 1 and Course 6 must precede all the rest. All required courses must precede Course 13 and Course 14.*

## III. SANSKRIT—FIRST SEMESTER.

1. Elements of Sanskrit and Comparative Grammar; Interpretation of texts contained in Stenzler's *Elementar-buch der Sanskrit-Sprache*, which is used by the class as a manual. Lectures. *Tuesday and Thursday, 5-6.* Mr. THOMAS.

*This course is designed (1) to familiarize the student with the Sanskrit grammar, and thus prepare him for the reading of Classical Sanskrit; (2) to afford an introduction to the study of Comparative Philology.*

## SECOND SEMESTER.

2. Continuation of Course 1. Interpretation of the first three books of the Nalopākhyānam, and a portion of the Hitopadeṣa, or perhaps of Kālidāsa's Çācuntalā, Act I. *Tuesday and Thursday, 5-6.* Mr. THOMAS.
3. In the second semester of 1880-1881, it is proposed to offer a two-hour course—embracing about thirty lectures—upon the Science of Language.

*Course 1 must precede Course 2. Students taking Course 1 or Course 3 must be candidates for the degree of B. A., or M. A., and must have pursued the study of Latin and Greek in the University at least three semesters, and the study of German at least one year.*



## II. MATHEMATICS.

## FIRST SEMESTER.

1. Advanced Algebra. *Mon., Tues., Wed., Thurs.*, Sec. I., 8½-9½; Sec. II., 9½-10½; Sec. III., 10½-11½; Sec. IV., 11½-12½; Sec. V., 5-6. Asst. Prof. C. N. JONES and Asst. Prof. BEMAN.
2. General Geometry and Calculus. *Mon., Tues., Wed., Thurs.*, Sec. I., 3-4; Sec. II., 4-5. Prof. OLNEY and Asst. Prof. BEMAN.
3. Advanced General Geometry and Calculus. *Five times a week*, 2-3. Prof. OLNEY.
4. Determinants. *Friday*, 8½-9½. Asst. Prof. C. N. JONES.
10. Trigonometry. *Tuesday and Thursday*, 2-3. Asst. Prof. BEMAN.

## SECOND SEMESTER.

5. Advanced Geometry; Plane and Spherical Trigonometry. *Mon., Tues., Wed., Thurs.*, Sec. I., 9½-10½; Sec. II., 3-4; Sec. III., 4-5; Sec. IV. and Sec. V., 5-6. Asst. Prof. C. N. JONES and Asst. Prof. BEMAN.
6. General Geometry and Calculus. *Mon., Tues., Wed., Thurs.*, Sec. I., 3-4; Sec. II., 4-5. Prof. OLNEY and Asst. Prof. BEMAN.
7. Modern Geometry and Trilinear Co-ordinates. *Tuesday and Thursday*, 2-3. Asst. Prof. BEMAN.
8. Calculus of Variations. *First half of semester. Monday and Wednesday*, 2-3. Prof. OLNEY.
9. Quaternions. *Second half of semester. Monday and Wednesday*, 2-3. Prof. OLNEY.
11. Analytical Mechanics. *Tues., Wed., Thurs., Fri.*, 8½-9½. Asst. Prof. C. N. JONES.

Courses 1 and 5 must precede all the rest. Courses 4 and 7 cannot be taken until Courses 1, 5, 2, 6 are completed; and Courses 8, 9 must be preceded by 1, 5, 2, 6, 3. Course 11 cannot be taken till after Course 3.

It is proposed to add a two years' course of Mathematical reading as soon as there shall be a sufficient demand for it, in such standard works as *Salmon's Higher Algebra*, *Frost's Solid Geometry*, *Dostor's Determinants*, *Todhunter's or Price's Integral Calculus*, and *Taite's Quaternions*.

## III. MODERN LANGUAGES AND LITERATURE.

## I. FRENCH—FIRST SEMESTER.

1. Beginning French — Duffet's French Grammar; Hennequin's French Reading Lessons. *Mon., Wed., Thurs., Fri.*, Sec. I., 8½-9½; Sec. II., 2-3. Mr. de PONT. Sec. III., 11½-12½. Mr. HENNEQUIN.
2. Idiomatic Analysis. Composition and Conversation. *Mon., Wed., Thurs., Fri.*, Sec. I., 10½-11½; Sec. II., 11½-12½. Mr. de PONT. Sec. III., 10½-11½. Mr. HENNEQUIN.

3. French Classics. *Mon., Wed., Fri.*, 11½-12½. Prof. MORRIS.
4. Romantic Dramas. *Tuesday and Thursday*, 11½-12½. Prof. MORRIS.

## SECOND SEMESTER.

5. Duffet's French Grammar; French Plays and Modern Prose-writers. *Mon., Wed., Thurs., Fri.*, Sec. I., 8½-9½; Sec. II., 11½-12½. Mr. de PONT. Sec. III., 11½-12½. Mr. HENNEQUIN.
6. Composition and Conversation; Romantic Plays and Modern Prose; Géruzez, Littérature Française. *Mon., Wed., Thurs., Fri.*, Sec. I., 10½-11½. Mr. de PONT. Sec. II., 10½-11½. Mr. HENNEQUIN.
7. Section I. Brachet's Morceaux choisis des grands écrivains français du XVI. Siècle. (Philological.) *Mon., Wed., Fri.*, 11½-12½. Prof. WALTER. Section II. Master-pieces of the XIX Century. (Literary and Conversational.) *Mon., Wed., Fri.*, 8½-9½. Mr. HENNEQUIN.

*Courses 1 and 5 must precede all others. Courses 2 and 6 must precede Course 3. Course 3 must precede Course 4. Course 7 is open to candidates for the degree of B. A. who have had Courses 1 and 5, and to all others, who have had Courses 1, 5 and 2.*

## II. GERMAN—FIRST SEMESTER.

1. Beginning German; Whitney's Text Books. *Tues., Wed., Thurs., Fri.*, Sec. I., 8½-9½; Sec. II., 9½-10½. Mr. HENNEQUIN. Sec. III., 3-4; Sec. IV., 4-5. Mr. THOMAS.
2. Goethe's Iphigenia; German Lyrics. *Five times a week.* Sec. I., 8½-9½. Mr. THOMAS. Sec. II., 10½-11½. Prof. MORRIS.

## SECOND SEMESTER.

3. German Plays. *Tues., Wed., Thurs., Fri.*, Sec. I., 9½-10½. Mr. HENNEQUIN. Sec. II., 10½-11½. Mr. THOMAS. Sec. III., 11½-12½. Mr. THOMAS.
4. Lessing's Laokoon. *Wednesday and Friday*, 10½-11½. Prof. WALTER.
5. Kluge; Geschichte der deutschen Literatur, *Tuesday and Thursday*, 10½-11½. Prof. WALTER.
6. Goethe's Faust. *Mon., Wed., Fri.*, 8½-9½. Mr. THOMAS.
7. Gothic; Ulfilas (Heyne's Edition). *Tuesday and Thursday*, 8½-9½. Prof. WALTER.

*The last four Courses are open to those who have completed Courses 1 and 3.*

## IV. ENGLISH LANGUAGE AND LITERATURE.

## FIRST SEMESTER.

1. English Grammar and Speeches. Sec. I., *Monday and Wednesday*, 2-3; Sec. II., *Monday and Wednesday*, 3-4; Sec. III., *Tuesday and Thursday*, 2-3. Asst. Prof. DEMMON. Text Books: Abbot's "How to Parse" and "How to Write Clearly." Each member of the Class will present two speeches.

2. Rhetoric; Theory and Practice. *Tuesday and Thursday, 3-4.* Asst. Prof. DEMMON. Text Book: D. J. Hill's "Science of Rhetoric." Each student will present two Essays.

*This Course is intended for students that have completed at least the first year's work in the University. It must be preceded by Course 1 or Course 7, and after this year by Course 1 in Psychology.*

4. English Literature; Anglo-Saxon Period. *Monday and Wednesday, 4-5.* Asst. Prof. DEMMON. Text Books: Sweet's "Anglo-Saxon Reader," and Morley and Tyler's "Manual of English Literature," Part I.

5. English Literature; Early Modern English Period. *Thursday and Friday, 2-3.* Prof. TYLER. Text Books: "Works of Chaucer," Aldine edition, and "Manual of English Literature," Part III.

*This Course must be preceded by Course 1 or Course 7.*

6. English Literature; Study of Masterpieces. *Twice a week, (once, two hours; once, one hour.)* Sec. I., *Monday, 2-4*; Sec. II., *Tuesday, 2-4*; Sec. III., *Wednesday, 2-4*; Secs. I., II. and III., *Thursday, 3-4.* Prof. TYLER. The Masterpieces: (a) More's Utopia (Arber's Reprint); (b) Bacon's Essays; (c) Milton's Areopagitica (Arber's Reprint); (d) Burke's Reflections on the French Revolution; (e) DeQuincey's Opium Eater; (f) Carlyle's Sartor Resartus; (g) Spenser's Faery Queen, Book I.; (h) Shakespeare's Sonnets; (i) Milton's Paradise Lost; (j) Dryden's Absalom and Achitophel; (k) Pope's Rape of the Lock; (l) Wordsworth's Excursion; (m) Tennyson's Princess.

*This Course must be preceded by Courses 5 and 10, and it is strongly recommended that these Courses be preceded by Courses 4 and 9.*

12. English Literature; Study of its Principal Forms in Prose and Verse. *Friday, 3-4.* Prof. TYLER. Lectures.

*This Course must be preceded by Course 5 and Course 10. It will be given in 1880-1, and not in the year following.*

13. The History and Principles of Journalism. *Friday, 3-4.* Prof. TYLER. Lectures.

*This Course will be given in 1881-2, and not in the year following.*

#### SECOND SEMESTER.

7. English Grammar and Speeches. *Monday and Wednesday, 3-4.* Asst. Prof. DEMMON.

*This Course is the same as Course 1.*

8. Rhetoric; Theory and Practice. *Tuesday and Thursday, 3-4.* Asst. Prof. DEMMON.

*This Course is the same as Course 2.*

9. English Literature; Transitional English Period. *Monday and Wednesday*, 4-5. Asst. Prof. DEMMON. Text Books: Corson's "Handbook of Anglo-Saxon and Early English," and "Manual of English Literature," Part II.
10. English Literature; Modern English Period. *Thursday and Friday*, 2-3. Prof. TYLER. Text Book: "Manual of English Literature," Part IV.

*This Course must be preceded by Course 5.*

11. English Literature; Study of Shakespeare. *Twice a week, (once, two hours; once, one hour)*. Sec. I., *Monday*, 2-4; Sec. II., *Tuesday*, 2-4, and Sec. III., *Wednesday*, 2-4; Secs. I., II and III., *Thursday*, 3-4. Prof. TYLER. Plays selected: Richard II., The two Parts of Henry IV., Richard III., Twelfth Night, As You Like It, The Merchant of Venice, A Midsummer Night's Dream, Lear, Hamlet, Othello, and Macbeth.

*This Course must be preceded by Course 6.*

14. The History of the English Drama. *Friday*, 3-4. Prof. TYLER. Lectures.

*This Course must be preceded by Course 5 and Course 10. It will be given in 1880, and not in the year following.*

15. American Literature. *Friday*, 2-3. Prof. TYLER. Lectures.

*This Course will be given in 1881, and not in the year following.*

## V. HISTORY.

### FIRST SEMESTER.

1. General History of England from the Accession of the House of Tudor to the Overthrow of the Stuarts; Recitations from Bright, vol. II. *Tues., Thurs., Fri.*, 4-5. Asst. Prof. HUDSON. Sec. I., 9½-10½; Sec. II., 4-5.
2. History of Civilization in the Middle Ages; Lectures twice a week, and Recitations from Guizot once a week. *Mon., Wed., Fri.*, 3-4. Prof. ADAMS.  
*In 1880-81, this Course will probably be given in the Second Semester.*
3. Political History of England since the Overthrow of Napoleon I.; Lectures. *Tuesday and Thursday*, 4-5. Prof. ADAMS.
4. Historical Seminary. The Constitutional History of England. The class is divided into sections, each section meeting once a week for two hours. *Tuesday*, 10½-12½; *Monday and Wednesday*, 4-6. Prof. ADAMS.
6. The Political History of America from the Settlement at Jamestown to the adoption of the Articles of Confederation; Recitations and Essays. *Monday and Wednesday*, Sec. I., 9½-10½; Sec. II., 5-6. Asst. Prof. HUDSON.

8. The Political Development of Prussia from its Earliest History down to the present time; Lectures. *Tuesday and Thursday*, 4-5. Prof. ADAMS.

*This Course is not given in 1879-80, but will probably be given in 1880-81.*

14. Constitutional History of the United States. Advanced Class in Von Holst, vol. II. *Tuesday and Thursday*, 5-6. Asst. Prof. HUDSON.

#### SECOND SEMESTER.

7. General History of Continental Europe from the Revival of Learning to the French Revolution; Recitations and Essays. *Tues., Thurs., Fri.*, 8½-9½. Asst. Prof. HUDSON.

*In 1880-81, this Course will probably be given in the First Semester.*

9. General History of England from the Overthrow of the Stuarts to the close of the Napoleonic Wars; Recitations from Bright, vol. III. *Mon., Wed., Fri.*, Sec. I., 4-5; Sec. II., 5-6. Asst. Prof. HUDSON.

10. Constitutional History of the United States. Advanced Class in Von Holst, vol. I. *Tuesday and Wednesday*, 5-6. Asst. Prof. HUDSON.

11. The Government of England, its Theories and its Methods at Home and Abroad; Lectures. *Tuesday and Thursday*, 4-5. Prof. ADAMS.

*This Course will not be given in 1880-81.*

12. Historical Seminary. Political History of the United States. *Three hours a week, (once two hours; once one hour.)* Sec. II., *Tuesday*, 10½-12½; Sec. I., *Monday*, 4-6; Sec. III., *Wednesday*, 4-6. Prof. ADAMS.

*Courses 1 and 9 must precede Course 4. After 1880-81 Course 4 can be taken only by postgraduates, and those who have previously had Courses 1, 2, 7 and 9. Courses 6 and 10 must precede Course 12. After 1880-81, Course 12 can be taken only by postgraduates, and those who have previously had Courses 2, 6, 7 and 10.*

#### VI. PHILOSOPHY.

##### FIRST SEMESTER.

1. Psychology. *Tuesday and Thursday*, 10½-11½. Dr. COCKER.  
2. Speculative Philosophy and Ethics. *Five times a week*, 9½-10½. Dr. COCKER.

*Speculative Philosophy (Ontology) will embrace Rational Cosmology, Rational Psychology and Rational Theology. Ethics will embrace the Postulates of Ethics, the Fundamental Concepts of Ethics, and the Ethical views of the World and Life.*

## SECOND SEMESTER.

3. Logic. (1) The Science of the Laws of Thought. (2) The Science of Knowledge in General. *Tuesday and Thursday, 10½-11½.* Dr. COCKER.

4. History of Philosophy. *Five times a week, 9½-10½.* Dr. COCKER.

*It is recommended that Courses 1 and 3 be not taken until the student has resided some time at the University, and either Course 1 or Course 3 must be taken before the student can be admitted to Courses 2 and 4.*

## VII. THE SCIENCE AND THE ART OF TEACHING.

## FIRST SEMESTER.

1. Practical. Embracing school supervision, grading, courses of study, examinations, the art of instructing and governing, school architecture, school hygiene, school law, etc. Lectures. *Tuesday and Thursday, 2-3.* Prof. PAYNE.

*Those taking this Course may be asked to hold two additional meetings a week for conference and discussion.*

## SECOND SEMESTER.

2. Historical, Philosophical and Critical. Embracing history of education, the comparison and criticism of the systems in different countries, the outlines of educational science, the science of teaching, and a critical discussion of theories and methods. Lectures. *Tuesday and Thursday, 5-6.* Prof. PAYNE.

*Either Course 1 or Course 2 will be requisite for obtaining a Teacher's Diploma.*

## VIII. POLITICAL ECONOMY.

## FIRST SEMESTER.

1. Elementary Course. Sec. I., *Monday and Wednesday, 2-3; Sec. II., Tuesday and Thursday, 2-3.*
2. Advanced Political Economy. *Tuesday and Thursday, 3-4.*

## IX. INTERNATIONAL LAW.

## SECOND SEMESTER.

1. Lectures on International Law. *Tuesday and Thursday, 2-3.*

## X. PHYSICAL SCIENCES.

## I. PHYSICS—FIRST SEMESTER.

1. Experimental Physics. *Two Lectures and one Recitation a week.* Prof. WEAD. Lectures, *Tuesday and Thursday, 9½-10½; Recitations, Wednesday, Sec. I., 10½-11½; Sec. II., 2-3.*
2. Experimental Lectures with Recitations from Text Book. *Five times a week.* Prof. WEAD. Lectures, *Tuesday and Thursday, 11½-12½; Recitations, Mon., Wed., Fri., Sec. I., 9½-10½; Sec. II., 11½-12½.*

7. Theoretical Physics. *Monday and Friday, 10½-11½.*
8. Physical Problems. *Monday, 2-3.*

## SECOND SEMESTER.

3. Physical Laboratory Work (Full Course). *Five times a week. Prof. WEAD. Daily, two hours between 2 and 5.*
4. Physical Laboratory Work. *Three times a week. Prof. WEAD. Friday, 2-3, and any other two days for two hours between 2 and 5.*
5. Higher Acoustics, including the Physical Basis of Music. Prof. WEAD. *Thursday, 4-5.*
6. Teachers' Course. *Eight or ten lectures at an hour to be agreed on hereafter. No credit is given and no examination required.*

*For admission to Course 1 or Course 2, the Mathematics now required for entrance and Plane Trigonometry will be required; it is recommended that one full year's study of Mathematics be taken in the University before beginning Physics.*

*For admission to Course 3 or to Course 4, Course 2 of Physics and either Course 1 or Course 2 of Chemistry will be required, and a knowledge of the Elements of the Differential Calculus will be presupposed, though not absolutely required. In Courses 3 and 4 provision is made for advanced students as well as for beginners.*

*For admission to Courses 5 and 6, Course 1 or Course 2 is required.*

*Instead of the Course in Advanced Acoustics, a similar Course in Optics will probably be given in 1881.*

*For admission to Course 7, Course 1 or 2 in Physics, Course 1 or 2 in General Chemistry, and Course 2 in Mathematics are required.*

*Course 8 is intended to be taken in connection with Course 1 or Course 2.*

*Where Course 1 is required for graduation or for entrance to other classes, Course 2 may be substituted by the student.*

## II. GENERAL CHEMISTRY—FIRST SEMESTER.

4. Laboratory Methods of Studying General Chemistry. *Three times a week, on any three out of five afternoons, two hours each exercise.*
5. The same subject as the above. *Five times a week.*

## SECOND SEMESTER.

1. Experimental and General Lectures. *Mon., Wed., Fri., 11½-12½.*
2. Lectures as above and in addition recitations on two days. *Total, five times a week, 11½-12½.*
3. Lectures and recitations on the Kinetic Theory of Gases and on Chemical Philosophy. *Tuesday and Thursday, 9½-10½.*

## III. ANALYTICAL CHEMISTRY—FIRST SEMESTER.

1. Qualitative Analysis. *Five times a week in recitation and five times a week in Laboratory, to count as two Full Courses. Recitation at 2.*

Mr. JOHNSON.

## SECOND SEMESTER.

4. Organic Chemistry. Lectures. *Three to five times a week; and, after the March recess, Proximate Organic Analysis, one hour in the Laboratory, five times a week; making one Full Course.* Prof. PRESCOTT.

## EITHER FIRST OR SECOND SEMESTER.

5. Quantitative Analysis. *Twice a week in the class-room, and five times a week in the Laboratory, to count as one and two-fifths Full Courses. In the First Semester, it may be completed before the Holidays as one Full Course; and it may be continued from the First Semester to the March recess, as two Full Courses.* Mr. CHEEVER.
7. Ultimate Organic Analysis. *Five times a week in the Laboratory.* Prof. PRESCOTT.
8. Physiological Chemistry. *Five times a week, including Laboratory work and lectures.* Asst. Prof. ROSE.
9. Assaying Ores, wet and dry. *Laboratory work and lectures, every day for two months, equivalent to a three-fifths Course.* Mr. CHEEVER.
10. Blow-pipe Analysis. *Every day, for six weeks, equivalent to a two-fifths Course, including Laboratory work and lectures.* Mr. CHEEVER.
11. Original Investigations. *Five times a week, Laboratory work and reading.* Prof. PRESCOTT.
12. Assaying of Ores, dry way. *Laboratory work and lectures, every day, for six weeks, equivalent to a two-fifths Course.*

*The Laboratory work requires from two to three hours daily, taken between 1 and 5; after the March recess, between 1 and 6.*

*The hours of class-work, except in Course 1, must be arranged with the respective instructors.*

*Course 1 or Course 2 in General Chemistry must precede any course in Analytical Chemistry. Courses 8 and 10 are open to those who have completed Course 1; and Courses 7, 9 and 11 to those who have taken Courses 1 and 5.*

## IV. ASTRONOMY—FIRST SEMESTER.

1. Theoretical Astronomy. *Five times a week, 4-5.* Prof. HARRINGTON.
5. General Meteorology. *Tuesday and Friday, 5-6.* Prof. HARRINGTON.

## SECOND SEMESTER.

2. General Astronomy. *Mon., Wed., Fri., 4-5.* Prof. HARRINGTON.
3. Spherical and Practical Astronomy. *Tuesday and Thursday, 4-5. Designed especially for Engineers.* Prof. HARRINGTON.
4. Theoretical Astronomy. *Five times a week, 5-6.* Prof. HARRINGTON.
- Courses 1 and 4 must be preceded by Course 2, and by Courses 1, 2, 3, 5, and 6 in Mathematics. Course 2 must be preceded by Course 1 in Physics. Those who take it are required to have completed some elementary work in*



*Astronomy, as Lockyer's, Loomis's or White's. Course 3 must be preceded by Courses 1, 2, 3, 5, and 6 in Mathematics. Course 5 must be preceded by Course 1 or 2 in Chemistry.*

## XI. MINERALOGY AND GEOLOGY.

### I. MINERALOGY—SECOND SEMESTER.

1. Short Course in Mineralogy. *Wednesday and Friday, 4-6.* Prof. PETTEE.
2. Mineralogy and Lithology. *Five times a week, 8½-10½.* Prof. PETTEE.

### II. GEOLOGY—FIRST SEMESTER.

1. Succession of Geological Events, embracing in their relations, the elements of geological dynamics, continent-building, and sculpturing, rock-classification, geographical geology, time-divisions, and Palæontology. Part I, Facts and Doctrines. *Monday and Wednesday, 11½-12½.* Prof. WINCHELL.
2. Oral Exercises. Supplementary to Course 1, and parallel with it; being a review, with exercises on the geological map, and in various specific geological problems. *Friday, 11½-12½.* Prof. WINCHELL.
3. Palæontology. Exercises consisting of lectures, reading and museum study. *Tuesday and Thursday, 11½-12½.* Prof. WINCHELL.
4. Palæontological Investigations. Consist of laboratory work, with reading, and such instruction as the student may require. *Two hours, five times a week, 2-4.* Prof. WINCHELL.

### SECOND SEMESTER.

5. General Geology, Part II. Theories. *Monday and Wednesday, 3-4.* Prof. WINCHELL.
6. Oral Exercises Parallel with Course 5. *Friday, 3-4.*
7. Palæontological Investigations as in Course 4.
8. Economic Geology. *Tuesday and Thursday, 4-6.* Prof. PETTEE.
9. Geology of the United States. *Monday, 4-6.* Prof. PETTEE.

*Courses 2 and 6 are intended to accompany Courses 1 and 5 respectively. Either may be taken, however, by any person somewhat acquainted with the elements of Geology.*

*Course 3 must be accompanied by Course 1, if the student has not previously pursued Historical Geology; it must also follow Course 2 in Zoölogy. Course 5 can be taken only by those who have had Course 1, or an equivalent.*

*Courses 4 and 7 are intended for students aspiring to geological proficiency. They must follow Course 1, and also Courses 1 to 5 in Zoölogy.*

## XII. BIOLOGICAL SCIENCES.

## I. ZOÖLOGY—FIRST SEMESTER.

1. Systematic Zoölogy; Lectures. *Five times a week, 8½-9½.* Prof. STEERE.
2. Invertebrates, with Identification of Species; Lectures and Laboratory work. *Five times a week, 9½-10½.* Prof. STEERE.

## SECOND SEMESTER.

3. Comparative Anatomy and Physiology; Lectures. *Five times a week, 8½-9½.* Prof. STEERE.
4. Identification of Vertebrates and special study of the same; Lectures and Laboratory work. *Five times a week, 9½-10½.* Prof. STEERE.
5. Entomology. *Tuesday, 4-5, and five times a week in Zoölogical Laboratory, time to be arranged with students.* Mr. HIGLEY.

*Course 1 or Course 3 must precede Courses 2 and 4. Course 5 must be preceded by Course 1 or 3.*

## II. BOTANY—FIRST SEMESTER.

1. Cryptogamic Botany. *Five times a week, including Laboratory work, 2-5, and Lectures. Tuesday and Thursday, 8½-9½.* Asst. Prof. SPALDING.
2. Pharmaceutical Botany. (a) Pharmacology. *Twice a week.* Asst. Prof. SPALDING. (b) Structural Botany and Laboratory work. *Three times a week.* The Laboratory being open every day, the student may choose his days. Mrs. STOWELL.

## SECOND SEMESTER.

3. Structural Botany. (a) Microscopy and Laboratory work. *Three times a week, 9½-12½.* Mrs. STOWELL. (b) Lectures. *Twice a week. Tuesday and Thursday, 8½-9½.* Asst. Prof. SPALDING.
4. Special investigations of Plant Structure accompanied by Physiological Experiments. *Three times a week. Lecture. Monday, 8½-9½. Laboratory work two hours in afternoon, two days.* Asst. Prof. SPALDING.

*All of the above Courses, except Course 5, require practical work in the Microscopical Laboratory. Two hours of laboratory work are equivalent to one hour of class-room work. Course 3 must precede Courses 1 and 4.*

## XIII. CIVIL ENGINEERING.

## I. DRAWING—FIRST SEMESTER.

1. Geometrical Drawing. *Tuesday and Thursday, 2-4.* Asst. Prof. DAVIS.
2. Topographical Drawing, Lettering and Ornamentation. *Tuesday and Thursday, 8½-10½.* Mr. DENISON.
3. Mechanical Drawing. *Mon., Wed., Fri., 2-4.* Asst. Prof. DAVIS.

4. Free-hand Drawing; Pen and Ink Drawing. *Mon., Wed., Fri., 8½-11½.* Mr. DENISON.

## SECOND SEMESTER.

5. Descriptive Geometry. *Mon., Wed., Fri., 8½-10½.* Asst. Prof. DAVIS.
6. Shades, Shadows and Perspective. *Monday and Friday, 8½-11½.* Mr. DENISON.
7. Free-hand Drawing (Advanced.) *Mon., Wed., Fri., 8½-11½.* Mr. DENISON.
8. Architectural Water-color Drawing. *Tuesday and Thursday, 8½-10½.* Mr. DENISON.  
*Course 1 precedes Course 4, and Course 4 must precede Course 5.*

## II. SURVEYING—FIRST SEMESTER.

1. Surveying; Use of Transit and Level. *Mon., Wed., Fri., 8½-12½.* Asst. Prof. DAVIS.
2. Surveying with Compass; Solar Compass; U. S. Surveys. *Tuesday and Thursday, 8½-12½.* Asst. Prof. DAVIS.

## SECOND SEMESTER.

3. Higher Surveying; Plane Table; Sextant; Earth-work. *Five times a week, 2-6.* Asst. Prof. DAVIS.
4. Field Work. *Four weeks entire, 8-12 and 1-5.* Asst. Prof. DAVIS.  
*Courses 1 and 2 presuppose a knowledge of Plane Trigonometry. Course 3 must be preceded by Courses 1 and 2.*

## III. CIVIL ENGINEERING—FIRST SEMESTER.

1. Strength and Resistance of Materials. *Monday and Wednesday, 9½-10½.* Prof. GREENE.
2. Engineering; Theory of Construction. *Tuesday and Thursday, 9½-10½.* Prof. GREENE.
3. Graphical Analysis of Structures. *Friday, 9½-10½.* Prof. GREENE.
4. Engineering Design. *Five times a week, 2-4.* Prof. GREENE.
5. Mechanism and Machine Drawing. *Tuesday and Thursday, 8½-10½.* Mr. DENISON.
6. Machinery and Prime Movers; Water Wheels and Steam Engines. *Mon., Wed., Fri., 10½-11½.* Prof. GREENE.

## SECOND SEMESTER.

7. Applied Mechanics. *Monday, 10½-11½.* Prof. GREENE.
8. Engineering; Theory of Construction. *Mon., Tues., Thurs., Fri., 9½-10½.* Prof. GREENE.
9. Hydraulics; Water Supply and Sewerage. *Wednesday, 9½-10½.* Prof. GREENE.
10. Stereotomy. *Tuesday and Thursday, 8½-10½.* Mr. DENISON.

*Courses 5 and 10 must be preceded by Course 4 in Drawing. A knowledge of the Integral Calculus is requisite to pursue Course 7, and this Course (7) must precede Courses 1, 2, 6, 8 and 9. Course 4 accompanies Courses 1, 2 and 8.*

#### XIV. BIBLIOGRAPHY.

Mr. DAVIS, the Librarian, gives a Course of Instruction in Bibliography. It consists of Lectures delivered once a week during the months of November and December. This Course is not one of those to be counted as meeting the requirements for a degree.

#### ARCHITECTURE AND DESIGN.

It is highly probable that the instruction in Architecture and Design, which was suspended in 1876, in consequence of temporary curtailment of the resources of the University, will be resumed in September, 1880, at the beginning of the academic year. Should it be resumed, the requirements for admission will be the same as for students of Civil Engineering.

It is thought desirable to give the following fuller statements than are found above concerning the instruction in certain branches.

#### THE SCIENCE AND THE ART OF TEACHING.

The Board of Regents, at their meeting in June last, in accordance with the recommendation of the President and the Faculty of this Department, established the Chair of the Science and the Art of Teaching.

The purposes are:

1. To fit University students for the higher positions in the public school service.

It is a natural function of the University, as the head of our system of public instruction, to supply the demand made upon it for furnishing the larger public schools with superintendents, principals, and assistants in high schools. Year by year these important positions are falling more and more into the hands of men who have received education in the University. Up to this time, the training given to our graduates has been almost purely literary; it has lacked the professional

character that can alone give special fitness for the successful management of schools and school systems. Now, however, it is proposed to offer students of this University who wish to become teachers ample facilities for professional study; and this purpose is embodied in the establishment of this new Chair.

2. To promote the study of educational science.

The establishment of this Chair is a recognition of the truth that the art of education has its correlative science; and that the processes of the school-room can become rational only by developing and teaching the principles that underlie these processes. Systems of public instruction are everywhere on trial, and the final criteria by which they are to stand or fall must be found in a philosophical study of the educating art.

3. To teach the history of education, and of educational systems and doctrines.

The supreme right of the school is to grow; and much hurtful interference might be avoided by ascertaining the direction of educational progress and the history of educational thought.

4. To secure to teaching the rights, prerogatives and advantages of a profession.

5. To give a more perfect unity to our State educational system by bringing the secondary schools into closer relation with the University.

### TEACHERS' DIPLOMAS.

Any one who pursues one of the Courses in the Science and the Art of Teaching, and some one other course of study with reference to preparation for teaching, and who by special examinations shows such marked proficiency as qualifies him to give instruction, may receive a special Diploma signed by the President and by the Professors who have charge of the studies he has taken with this object in view.

A special examination in the ancient and modern languages and mathematics for the Teacher's Diploma, will be held the week before the spring vacation. This Diploma is

designed to be the certificate of qualification for teaching, and is the only form of recommendation which will be given by the Professors in charge of these studies.

### CIVIL ENGINEERING.

The University aims, by the course of study pursued in the department of Civil Engineering, to lay a foundation of sound theory, sufficiently broad and deep, to enable its graduates to enter understandingly on the further investigation of the several specialities of the profession, and at the same time to impart such a knowledge of the usual practice of an office, and of an engineering party, as shall make its students useful in any position to which they may be called. While the adaptation of theory to practice can be thoroughly learned only by the training of experience, there are many matters in which the routine of work of an engineering field party, office or drafting room can be carried out on a greater or less scale. In all such particulars the civil engineering course of the University will embody as close an imitation of the requirements of active labor as the instructors who have the several branches in charge can devise. All the technical branches are under the direct care of those who have had professional experience as well as a full scientific training. How the above objects are attained will be seen below.

Upon a successful completion of *twenty-four Full Courses*, including the required studies specified hereafter, and the presentation of a satisfactory thesis, with accompanying drawings, the student will receive the degree of Bachelor of Science (after 1881) in the Department of Civil Engineering. Students who are not candidates for a degree may pursue such studies as they prefer, provided they are found prepared to join the classes in those studies. They will be expected to attend all the lectures, recitations and examinations in those branches prescribed for the regular students, and will be required to take enough work to occupy them profitably. The time requisite for a careful and thorough preparation for the profession is not specified by the University: any student of ordinary

diligence may complete all the work within four years. A second degree, of Civil Engineer, will be conferred upon candidates, after a sufficient interval of study and actual work; the precise conditions for obtaining it have not yet been definitely determined.

Bachelors of Arts, of Letters, and of Science of this University, and graduates of other Colleges, whose courses of study are equivalent to ours, are admitted to the same degree with the regular students after attendance on, and a satisfactory examination in, the technical subjects alone of this course as set forth in the schedule on the following pages, in addition to the Higher Mathematics, and Analytical Mechanics, there specified. These studies can be completed in two years. The culture imparted by classical or other liberal training will be found to have its uses for one engaged in the engineering work, and the previous discipline of the faculties in exact research will enable the professional student to master more easily the requirements of the course. All the time which the student can devote to general studies before taking up specialities will be well spent.

The work in surveying combines theory and practice as follows: A course of lectures and text-book work, in daily exercises, covers so much of one year as is not given to field work; all the operations of surveying, laying out work and computing, as well as the theory of instruments, are explained in detail. Every student is afforded abundant opportunity of becoming familiar, by actual use, with the excellent and full assortment of instruments owned by the University, embracing those usually employed in actual work, and numbering enough to equip well the parties. The classes in surveying are drilled in all the field work that pertains to that branch of engineering; they make surveys, traverse them, calculate contents divide areas, and solve problems in heights and distances, from data taken by the members themselves. They also determine the meridian and take observations for latitude. This work is done during the fall months; the finished plans of the surveys are made during the winter.

The classes in railroad engineering have practice in running levels and curves of different kinds, and in the measurement of earthwork. They are also, in the month of June, taken into the field as a railroad party, under competent supervision, for a space of four weeks continuously, when they go through all the field work for a projected line; reconnoissance, preliminary and location surveys, cross-sectioning, staking out, contouring and topography, doing all the work up to the point of actual construction. A plan and profile, carefully made in the field by each student from the notes of the party, completes this portion of the subject, and serves to fix the practical application of the principles obtained from the text-books and lectures. In the above work is usually included a plane-table survey, triangulation, and some hydrography, when the selected locality is favorable.

A course of instruction, by text-books and lectures, is given in Analytical Mechanics, the work being shaped especially for the needs of engineering students.

The study of the Strength of Materials and the Theory of Construction covers a course of recitations and lectures for an entire year. The text-book used is Rankine's Manual of Civil Engineering, supplemented with full explanations, additional lectures, examples and problems. A complete course of instruction is also given in the Graphical Analysis of Roof and Bridge Trusses and Arches, as recently developed and applied. The student is made familiar with both the analytical and graphical methods of treatment, and thus possesses ready proof of the accuracy of his calculations.

Contemporaneously with this course of study the class are required to work out problems in Engineering Design, or the application of the theory to actual cases. The students are furnished with the usual data for a design, and the kind or type of structure is indicated. They are then expected to make the necessary calculations for proportioning the different parts, and to present, at a specified date, complete working drawings, giving full details and figured dimensions, accom-



panied by bills of materials. The graphical method is applied to each problem.

A very complete course of Mechanical Drawing, with kindred studies, is also given. It embraces, first, Plane Projection Drawing and the elementary principles of coloring, shading, isometric projection, etc.; next, Descriptive Geometry, with original problems executed in the drawing room, followed by Free-hand Drawing, Topographical Drawing, Ornamentation and Lettering, Shades and Shadows, Linear Perspective and Drawing for Stone-Cutting. Lectures are given on Pure Mechanism, with work in drawing parts of machines. Examples from numerical data are always given in all branches and copying from the flat is avoided. The plans of surveys, plane-table work, maps, designs in engineering construction, and finally the Thesis Drawings, naturally come under this head, and all together give work in the drawing rooms almost daily throughout the course.

Finally a course of lectures is given upon the principles of Machine Construction, and upon the action of Turbines and other Water Wheels, the Steam Engine, etc.

The instruction is illustrated by models, drawings, photographs, lithographs, etc., including trusses, arches, details of construction, in iron, wood and stone, shapes of iron, working models of turbines, engines, etc., working drawings of a number of bridges, etc. These collections are receiving additions from year to year, by gifts and purchase, and are invaluable to the student. The latest and best books on professional subjects are added yearly to the library, where they are accessible to all, and frequent references are made to them in the classroom, as the various subjects are brought forward.

Examinations, usually written, are held at the end of each semester, but, at any time, without previous notice, the classes may be examined on any portion of their previous work, to test their actual knowledge.

For *Requirements for Admission*, see p. 26.

## COURSES OF STUDY.

The courses of study required for graduation in the Department of Civil Engineering are as follows, the technical branches being printed in SMALL CAPITALS.

*Mathematics.*—Courses 1, 2, 3, 5, 6, 11; Part III. of Olney's Algebra, or an equivalent in other authors; Part III. of Olney's Geometry; Plane and Spherical Trigonometry; General Geometry, including Loci in Space; Differential and Integral Calculus, Analytical Mechanics.

*Applied Mechanics.*—Civil Engineering Course 7; Wood's Analytical Mechanics, with Lectures.

**CIVIL ENGINEERING.**—Courses 1, 2, 4, 8, 9; Rankine's Civil Engineering, Parts II. and III., and Lectures; Resistance of Materials and Theory of Structures; Principles of Stability and Strength; Beams, Trusses, Girders; Roofs and Bridges in Wood and Iron; Arches in Stone and Iron; Earthwork, Masonry, Retaining Walls, Foundations, Tunnels.

Flow and Distribution of Water; Sanitary and Hydraulic Engineering; Drainage and Sewerage, Canals and Tidal Works.

Engineering Design; Original Problems and Designs for Roofs, Bridges, and Structures of Wood, Iron and Stone; Working and Detail Drawings; Bills of Material, Diagrams and Strain Sheets.

[The above Courses will necessarily be taken nearly in the order of enumeration.]

**DRAWING.**—Courses 1, 2, 4, 5, 6; Civil Engineering Course 10; Geometrical Drawing; Plane Projection, Isometric Projection; Use of India Ink and Water Colors; Free-hand Drawing, Pen and Ink Drawing; Descriptive Geometry, with Problems; Topographical Drawing; Ornamentation and Lettering; Shades and Shadows, Linear Perspective; Stereotomy.

**MACHINERY AND PRIME MOVERS.**—Civil Engineering Courses, 5, 6; Lectures on Principles of Mechanism; Machine Drawing from Models and Machinery; Lectures on Theory and Construction of Machines; Water Wheels; Steam Engines.

[The above courses, also, must practically conform to the given order. The order of the Courses which follow is left to the discretion of the student, subject to the restrictions found on pp. 29-30.]

**SURVEYING.**—Courses 1, 2, 3, 4; Theory and Adjustment of Level, Transit, Compass, Solar Compass, Plane Table and Sextant; Henck's Field-book for Engineers; Rankine's Civil Engineering; Leveling, Topography, Staking out Work, Computation of Quantities, Prepara-

tion of Estimates; Field Practice; Drawing of Plans, Maps and Profiles.

ASTRONOMY.—Course 3; Spherical and Practical Astronomy; Computation of Time, Latitude and Longitude.

GRAPHICS OF STRUCTURES.—Civil Engineering Course 3; Stress Diagrams and Graphical Methods of Analysis; Greene's Trusses and Arches; Part I., Roof Trusses; Part II., Bridge Trusses; Part III., Arches.

French.—Courses 2, 6.—Grammatical Analysis; Translation into English and French.

German.—Courses 1, 3.—Whitney's Grammar, Exercises and Reader.

English.—Course 1 or Course 7.—English Grammar and Rhetoric; Theory and Practice.

Physics.—Course 2.—Mechanics, Acoustics and Optics; Experimental Lectures and Text-book.

Chemistry.—Course 2.—Elementary Chemistry, Heat, Electricity and Magnetism; Experimental Lectures and Class-room Work.

Mineralogy and Geology.—Courses 1, 5.—Mineralogy and Lithology; Dynamical and Structural Geology.

The studies just enumerated make *twenty and one-fifth Full Courses*, as defined on p. 60. From the other courses offered the candidate for a degree must choose and complete *three and four-fifths Full Courses*, making *Twenty-four Full Courses* in all; and he must also prepare a satisfactory thesis. It is suggested that this additional work, and such other extra work, if any, as the student's ability and length of residence may warrant his undertaking, shall be chosen from studies which will strengthen the *required* courses, rather than introduce new branches.

## ADVANCED STUDIES.

An advanced course of study is offered to graduates of the Civil Engineering Course and to Resident Graduates. It will consist of:

CIVIL ENGINEERING.—Further investigations of the Theory of Construction, more especially in the direction of Continuous Girders, Revolving Draw-Spans, Rigid and Braced Arches, etc.

Also a more extended course on the Steam Engine and other Prime Movers.

PROJECTS IN ENGINEERING.

MATHEMATICS.—Calculus of Variations.

ASTRONOMY.—*Theoretical Astronomy*.—Numerical Calculus, Theory of Interpolation and Quadratures, Method of Least Squares. Calculation of the special and general Perturbations of Planets and Perturbations of Comets.

PHYSICS.—Work in Physical Laboratory and Mathematical Theory of Light and Sound. Heat, Electricity and Magnetism.

CHEMISTRY.—Qualitative and Quantitative Analysis.

## MECHANICAL AND MINING ENGINEERING.

While there are no courses of instruction looking directly to these professions, the greater part of the studies prescribed for the students in Civil Engineering will be found needful by those students in Selected Studies who may wish to devote especial attention to these branches. The instruction specially useful to those who are looking to Mechanical Engineering is: Pure Mechanism, or the General Principles of Machinery, including Gearing, Cams, Screws, Cranks and Levers, with Problems and Machine Drawing; also lectures upon the Prime Movers, Water Wheels and the Steam Engine.

Those who are preparing for Mining Engineering will find assistance in pursuing the Courses in Mineralogy, and Historic and Economic Geology, and in studying in the Chemical Laboratory Qualitative and Quantitative Analysis and Metallurgy. There is a considerable collection of apparatus for illustrating studies in Mining Engineering.

Students in Selected Studies may also take up Rankine's "Machinery and Millwork," and Rankine's "Steam Engine and Other Prime Movers," a more extended course than is generally pursued by the candidates for graduation.

# SPECIAL AND ADVANCED COURSES IN SCIENCE.

## I. PALÆONTOLOGY.

Course 4 in the First Semester and Course 6 in the Second Semester are courses of advanced study provided for students who have completed Courses 1 and 5. They are not intended for a general presentation of the whole field of Palæontology, but for the detailed study of special branches, such as Brachiopods, Corals, Cephalopods, Fishes, Reptiles or Mammals, or the complete palæontology of particular formations. One of these special subjects will be taken up each semester. The subject for the First Semester of the current year is *Eozoon* and

the *Stromatoporidae*. That for the Second Semester is *Brachiopods*.

The student is placed in possession of the requisite materials, and directed in personal investigation. He is aided in carrying on this work by the usual accessories of cutting and polishing lathes, thick and thin sections and microscopes. He is required to execute drawings, both macroscopic and microscopic, to complete methodical records of his observations, and to prepare a thesis. He is referred to all accessible sources of information, and expected to possess himself of the results attained by the investigations of others. A general summary of the existing state of knowledge on the subject is to be embodied in his thesis.

The time required for this work is not less than two hours a day during five days each week.

No particular text-books can be cited here for these courses, since the authorities are various and numerous. In *Brachiopods* the student will be specially guided by manuscripts prepared by the Professor in charge.

## II. ZOÖLOGY.

Special and advanced students will be allowed to elect any of the Courses heretofore described, or, if too far advanced to receive profit from these, will be given special work.

## III. BOTANY.

Special courses in Botany are given during both semesters. They are offered to students who have already completed the elementary course in Structural and Physiological Botany.

In the First Semester a course of lectures is given on the special Morphology of Plants. A practical study of the leading groups of cryptogamic plants, with observations of their anatomy and physiology, is carried on in the Microscopical Laboratory. Special attention is paid to the study of Fungi, and their relations to other plants, and original investigation in this direction is encouraged as much as possible.

Sachs's "Text book of Botany," DeBary's "Morphologie und Physiologie der Pilze," Cooke's "Hand-book of the British

Fungi," an edition of Gray's Manual of Botany, containing the Mosses and Hepaticæ, Sullivant's "Icones Muscorum," and Hooker and Baker's "Synopsis Filicum," are among the most important works of reference.

In the Second Semester an advanced course in Structural and Physiological Botany is pursued. Lectures are given, accompanied by experimental work and a thesis on the part of the student. The plan of work this year will be essentially that indicated in Sachs's "Hand-buch der Experimental Physiologie." In addition to the text-books of Sachs, Johnson's "How Plants Grow," and "How Plants Feed," are recommended for reference.

These courses will be made as practical as possible. For this purpose the student will be expected to apply for a table in the Microscopical Laboratory, where all the necessary materials, microscopes, and other instruments will be provided at a cost only sufficient to cover actual expenses on the part of the University.

Instruction is given in Practical Microscopy, the use of Micro-Chemical Reagents, and other methods of observation, in drawing and measuring from the microscope, etc. The Microscopical Laboratory is open every morning from 8½ to 12½ o'clock. The charge for the use of microscopes, other instruments and materials, is at present fixed at two dollars for each semester or fraction of a semester, which amount must be deposited by each student with the Treasurer of the University before his application for a table can be entered. Students are responsible for the apparatus furnished them, and are required to make good any injury to the instruments under their charge.

Among the works of reference to be used in the Laboratory are Carpenter's "Microscope," the "Micrographic Dictionary," Schacht's "Mikroskop und seine Anwendung," Flückiger and Hanbury's "Pharmacographia," Berg's "Anatomischer Atlas," etc.

The Botanical Course in the School of Pharmacy is described in the chapter devoted to that School.

## IV. PHYSICS.

The special and advanced work offered in Physics for the year 1879-80 includes in the First Semester a course in Theoretical Physics, twice a week, in which the student will gain some familiarity with the application of the calculus and other branches of Mathematics to physical questions; and a short course, once a week, in physical problems on the points at the time under discussion in the classes in experimental Physics.

In the Second Semester are offered a course in Advanced Acoustics, including the physical basis of Music, once a week, and during April and May a brief course of eight or ten lectures to students expecting to teach, discussing methods of teaching Physics and describing simple experiments, the construction and use of simple apparatus, text books, etc.

It is expected that before long an Advanced Course in experimental Physics, requiring five hours per week, will be offered, which may be taken in place of the present courses by such students as have studied Physics in the best High Schools of the State, or have made equal attainments elsewhere.

At present the principal advanced work offered is in the Physical Laboratory: beginners in this work must join the classes in the Second Semester, but advanced students may be allowed to pursue their work during the First Semester. More attention will hereafter be given to the special needs of students expecting to teach. The rooms devoted exclusively to the Department of Physics, extend in a direct line over 125 feet, and are lighted from the north, east and south, and are provided with steam, gas and water.

In the Physical Laboratory a systematic course in physical measurements is provided; such a course as will give the student familiarity with apparatus and its manipulation, a clearer understanding of the methods by which the important tables of the text-book have been made out, and confidence in their accuracy. For this purpose apparatus has been provided for the accurate determination of weights and measures, linear and cubic, of specific gravity, elasticity of bodies, strength and stiffness of beams, and simple structures as trusses, bridges,

etc.; for the flow of liquids and gases, for many measures of rates of vibration of sounding bodies, of the index of refraction in solids and liquids, of wave length of lines in the solar spectrum, and in the spectrum of common materials, of the intensity of light, and of the amount of light absorbed by various shades, etc.; of the strength of galvanic batteries, and the resistance of conductors, of specific and latent heat, etc., etc.

The plan followed is in the main the one developed through many years of successful operation at the Massachusetts Institute of Technology, modified as may be necessary to meet the wants of advanced or special students. Pickering's "Elements of Physical Manipulation" is used as a text book. It is, of course, understood that in this course the students perform all the experiments themselves.

As the schedule is at present arranged, work in the Laboratory comes in the Second Semester, and follows naturally on the text-book work of the first; there will then remain time during the college course for advanced or original work, if the student desires it.

Those desiring to become familiar with the ordinary apparatus and lecture experiments can also be accommodated to a considerable extent. No extra fees are required for any of the work in Physics.

## V. ASTRONOMY.

The Course in Higher Astronomy embraces two years. The following subjects give direction to the lectures of the course:

Formation of the Fundamental Equations of Motion. Integration of the Equations for Undisturbed Motion, and Determination of the Elements of the Orbit. Theory of Interpolation. Calculation of Ephemerides.

Calculation of the Orbits of the Celestial Bodies from Three or more Observations. Correction of the Elements. Combination of Observations by the method of Least Squares. Special and General Perturbations. Determination of Time, Latitude and Longitude.

Theory of the Instruments.



During the course the student has access to the instruments of the Observatory, under the special direction of the Professor, and is permitted to take part in the observations.

## VI. GENERAL CHEMISTRY.

In addition to Courses 1 and 2 on the subjects of Chemical Physics and General Chemistry, which are mentioned on page 39, the following are offered for advanced work in General Chemistry.

COURSE 3. Chemical Philosophy and the Kinetic Theory of Gases.  
*Twice a week by lectures.*

Considerable familiarity with the principles and facts of chemistry will be required before the student enters upon this work. The minimum preparation for it is Course 2, but students are advised to take also in addition one of the two courses below, or one or more of those offered in Analytical Chemistry, because the higher forms of chemical theory cannot be understood without an extensive acquaintance with the details of the science.

COURSE 4. As the Physical Sciences are preëminently experimental, it is impossible to acquire a practical knowledge of them from books alone. In Chemistry this want is largely supplied by the instruction given in the Laboratory of Analytical and Applied Chemistry; but while analysis presents one mode of the study of Chemical Science, and is alike indispensable to the extensive prosecution of pure chemistry and of the applications of chemistry to practical life, it occupies only a portion of the field of chemical science. Courses 4 and 5 make use of laboratory methods, but for general, as distinguished from technical, purposes.

Each student is supplied with a table and apparatus; no text-book is used, but in its place daily circulars outline a course of experiments supplemented by references to works in the library. Students make investigations and draw conclusions which are reviewed from time to time in the class-room. *This Course is given three times a week, occupying the afternoons.*

COURSE 5. Is the same as the above, but continued *five times a week*, or it may be varied by employing three days as in Course 4, and adding two days in modes of experimentation especially employed by teachers and lecturers.

Both of the above courses demand a consumption of materials which are furnished by the University; therefore, a deposit of ten dollars must be made before commencing work; a fixed charge of five dollars per semester is made for gas and chemicals. Uninjured apparatus may be returned at the issuing price.

Course 3 is offered in the Second Semester, and Courses 4 and 5 in the First Semester.

To students desiring a competent knowledge of General Chemistry, the following electives are suggested: First year, Course 2 in Physics in the First Semester, and Course 2 in General Chemistry in the Second Semester. Second year, Course 5 for the First Semester, and Course 3 for the Second Semester, both in General Chemistry.

To those who desire to study Analysis, Courses 1 or 2 and 4 in General Chemistry are suggested as furnishing a good preparation for work in Applied Chemistry.

## VII. ANALYTICAL AND APPLIED CHEMISTRY.

The Laboratory of Analytical and Applied Chemistry provides systematic instruction, with suitable appliances, in convenient rooms, for the various branches of chemical analysis, and for physiological chemistry, pharmacy, and metallurgy. In all of the courses there are recitations and lectures in the class-room, giving direction to the daily practice of the student at his table, and demanding his immediate study of the work undertaken. The method of laboratory teaching makes it indispensable that the student begin with a class. The schedule of courses, with the time of each, for students in the Department of Literature, Science and the Arts, is given on pp. 39-40. Other courses are presented for study in the Department of Medicine, and in the School of Pharmacy, as may be found, in detail, by reference to these departments.

The beginner, in the Course of *Qualitative Analysis*, forms an acquaintance with the metallic elements and their combinations with non-metallic bodies,—making an experimental study of solubilities, and a critical inquiry into synthetic

changes. From this foundation he proceeds to the identification and separation of substances. In the Course of *Quantitative Analysis*, the student obtains further training in exactness of operation, verifies the constants of science by computing his own results, and may then practice in determinations needed in the natural sciences, or in valuation of articles in common use.

Those who have prepared themselves in qualitative and quantitative analysis may engage in *original investigations*, with the necessary search of authorities. With previous completion of the course in proximate organic analysis, or that of physiological chemistry, researches in the chemistry of plants, or of animal life, may be undertaken. Earnest encouragement and coöperation are promised to all those, who, with due preparation, will enter upon original work.

Students desiring to qualify themselves as General Analysts, and for *detection of impurities in articles of commerce*, should complete the work in qualitative and quantitative analysis, and then take three of the courses of the School of Pharmacy, namely; micro-botany, proximate organic analysis, and organic chemistry.

In preparation for the duties of the *Assayer and Metallurgist*, after the qualitative work, and a special course in quantitative analysis, the student takes a course in Blow-pipe Analysis of Minerals, and one in Assaying. These may accompany the elective courses in Metallurgy, Mining, Geology, and courses in Engineering, and may be pursued with the studies required for the degree of B. S.

Training in Analytical Chemistry as the principal object, duly strengthened by the study of physics, the natural sciences and the modern languages, and constituting a most suitable education for the profession of an *Analytical and Consulting Chemist*, may be obtained in the courses required and elective for the degree of Bachelor of Science. With this object it is necessary that the mathematics be so far advanced in the First Year that the physics and general chemistry can be obtained in the Second Year.

Students may obtain opportunity for special studies in the Laboratory by complying with the requisites for admission, and the regulations of study in a department of the University to which the desired special studies properly belong.

EXPENSES OF THE LABORATORY.—It is the design of the Regents that the chemicals and apparatus actually consumed in the individual manipulations of the student shall be paid for by him. With this view, the student on entering the Laboratory makes a deposit of ten dollars, a complete suit of apparatus is inventoried to him, and from time to time additional supplies are furnished. An accurate account is kept. On leaving the Laboratory he is credited with what may remain unconsumed, and the balance is struck. All supplies are furnished the student at the printed price current of New York dealers. The Laboratory expenses of students will vary with their prudence and economy. Experience has shown that the average is about one dollar and twenty cents per week for all Laboratory courses.

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## REQUIREMENTS FOR GRADUATION.

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### PRELIMINARY EXPLANATION.

1. Five exercises a week during a semester, whether in recitations, Laboratory work, or lectures, shall constitute a *Full Course of study*. The completion of *twenty-four such Full Courses* is required to obtain the recommendation of the Faculty for the degree of Bachelor of Arts, or of Civil Engineer, or of Mining Engineer. The completion of *twenty-six such Full Courses* is required to obtain the recommendation for the degree of Bachelor of Philosophy, or of Bachelor of Science, or of Bachelor of Letters.

2. It is not essential that the exercises constituting a *Full Course* shall be in one and the same branch of study. Thus, a part (two, for instance) may be in Mathematics, a part (say two) in Greek, and a part (say one) in Latin, etc., making a total of five.

# THE DEGREE OF BACHELOR OF ARTS.

To obtain the recommendation of the Faculty for the degree of Bachelor of Arts, the student *must* complete

Courses 1, 2, 3, 6, 7 or 12, 13,	in Greek.
Courses 1, 2, 6, 8,	in Latin.
Courses 1, 2, 5, 6,	in Mathematics.
Courses 1 or 7, and 2 or 8,	in English.
Course 1,	in Philosophy.
Course 1,	in Physics.
Course 1,	in General Chemistry.

These make *twelve and two-fifths Full Courses*. From the other courses offered the student must choose and complete enough to be the equivalent of *eleven and three-fifths more Full Courses*, making in all twenty-four Full Courses.

# THE DEGREE OF BACHELOR OF SCIENCE.

[The degree of Bachelor of Science will after 1881 be given to those who complete the studies in Civil Engineering and Mining Engineering.]

To obtain the recommendation of the Faculty for the degree of Bachelor of Science the student *must* complete

Courses 1, 2, 5, 6,	in Mathematics.
Courses 2, 6,	in French.
Courses 1, 3,	in German.
Courses 1 or 7, and 2 or 8,	in English.
Course 1,	in Philosophy.
Course 2,	in Physics.
Course 2,	in General Chemistry.
Course 2,	in Astronomy.
Course 1,	in Zoölogy.
Course 3,	in Botany.
Courses 5, and either 1 or 4,	in Drawing.

These make *thirteen and one-fifth* (or if Drawing 4 be taken) *thirteen and two-fifths Full Courses*. He *must* also elect at least

1. In History, the equivalent of one Full Course.
2. In Mineralogy and Geology, the equivalent of one Full Course.

3. In the Chemical or the Physical Laboratory, one Full Course.

4. In the Microscopical Laboratory, one Full Course.

5. And in addition to these, from scientific studies the equivalent of three Full Courses.

From the other courses offered in the Department of Literature, Science and the Arts, he must choose and complete enough to make in all *twenty-six Full Courses*.

### THE DEGREE OF BACHELOR OF PHILOSOPHY OR OF BACHELOR OF LETTERS. (LATIN.)\*

To obtain the recommendation of the Faculty for the degree of Bachelor of Philosophy, or of Bachelor of Letters (Latin), the student *must* complete

Courses 1, 2, 6, 7, 8,	in Latin.
Courses 1, 2, 5, 6,	in Mathematics.
Courses 2, 6,	in French.
Courses 1, 3,	in German.
Courses 1 or 7, and 2 or 8,	in English.
Course 1,	in Philosophy.
Course 1,	in Physics.
Course 1,	in General Chemistry.
Some one Full Course,	in Science.

These make *thirteen and one-fifth Full Courses*.

From the other courses offered he must choose and complete enough to form the equivalent of *twelve and four-fifths Full Courses*, making in all *twenty-six Full Courses*.

### THE DEGREE OF BACHELOR OF LETTERS.

To obtain the recommendation of the Faculty for the degree of Bachelor of Letters the student *must* complete

Course 10,	in Mathematics.
Courses 1, 2, 5, 6,	in French.
Courses 1, 2, 3, 4, 5,	in German.

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\* The Degree of Bachelor of Philosophy will be conferred until 1881, and thereafter instead of that, the degree of Bachelor of Letters (Latin), will be given.

Courses 1 or 7, either 2 or 8, 4, either 5 or  
 9, 10, . . . . . in English.  
 Course 1, . . . . . in Philosophy.  
 Some two *Full Courses* (to be chosen), in Science.

These make *eleven and two-fifths Full Courses*. From the other courses offered the student must choose and complete the equivalent of *fourteen and three-fifths Full Courses*, making in all *twenty-six Full Courses*.

### THE DEGREE OF CIVIL ENGINEER.\*

To obtain the recommendation of the Faculty for the degree of Civil Engineer the student *must* complete

Courses 1, 2, 3, 5, 6, 11, . . . . . in Mathematics.  
 Courses 2, 6, . . . . . in French.  
 Courses 1, 3, . . . . . in German.  
 Course 1 or 7, . . . . . in English.  
 Course 2, . . . . . in Physics.  
 Course 2, . . . . . in General Chemistry.  
 Course 1, . . . . . in Mineralogy.  
 Course 3, . . . . . in Astronomy.  
 Courses 1, 2, 4, 5, 6, . . . . . in Drawing.  
 Courses 1, 2, 3, 4, . . . . . in Surveying.  
 Courses 1 to 10 inclusive, . . . . . in Civil Engineering.

These make *twenty and one-fifth Full Courses*. From the other courses offered he must choose and complete *three and four-fifths Full Courses*, making *twenty-four Full Courses* in all.

He must also prepare a satisfactory thesis.

### REQUIREMENTS FOR THE HIGHER DEGREES.

1. To obtain the recommendation of the Faculty for the degree of Master of Arts, the student must, while residing at the University, complete six full courses in addition to the twenty-four required for the degree of Bachelor of Arts, and must present a satisfactory thesis to the Faculty.

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\*This degree will be given until 1881. After that date the degree of Bachelor of Science will be given to those who complete the studies above named, and that of Civil Engineer will be conferred only as a second degree.

2. To obtain the recommendation of the Faculty for the degree of Master of Science, the student must, while residing at the University, complete four full courses in addition to the twenty-six required for the degree of Bachelor of Science, and must present a satisfactory thesis to the Faculty. The choice of at least three of the four courses, and the subject of the thesis is limited to the physical and biological sciences.

3. To obtain the recommendation of the Faculty for the degree of Master of Philosophy\* the student must, while residing at the University, complete four full courses in addition to the twenty-six required for the degree of Bachelor of Philosophy, and must present a satisfactory thesis to the Faculty.

4. To obtain the recommendation of the Faculty for the degree of Master of Letters the student must, while residing at the University, complete four full courses in addition to the twenty-six required for the degree of Bachelor of Letters, and must present a satisfactory thesis to the Faculty.

5. A student may be recommended for a Master's degree without having taken the Bachelor's degree, provided he give notice of such a purpose at least one year before he applies for the degree, and choose courses which are approved by the Faculty, and present a satisfactory thesis to the Faculty.

6. Bachelors of Arts, Bachelors of Science, Bachelors of Philosophy, and Bachelors of Letters, graduates of the University, who have not resided here since graduation, but who at a date not earlier than two years after graduation shall, on examination, show special proficiency in literary or scientific studies, and present a satisfactory thesis to the Faculty, will be recommended respectively for the degrees above described, (1, 2, 3, 4.)

7. The degree of Doctor of Philosophy is open to the graduates of the University, or of any other reputable University or College, who shall have satisfied the Faculty on examination that they have made special proficiency in some one

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\*This degree will not be conferred after 1881. In its place the degree of Master of Letters will be bestowed.



branch of study, and good attainments in two other branches to be specified by the Faculty. They will be expected to reside here, and to perform an amount of work which will occupy at least two years. It is intended that the degree of Doctor of Philosophy shall not be won merely by faithful and industrious work in some assigned course of study, but that the successful candidate shall evince power of original research, and of independent investigation.

Persons who are not graduates will be received as candidates for this degree, if they satisfy the Faculty that they have made attainments equivalent to those required here for the degree of Bachelor of Arts, Bachelor of Philosophy, or Bachelor of Science.

8. After the current academic year (1879-80), candidates for Master's degrees will be required to present their theses at a date not later than the first day of the Second Semester; and candidates for the degree of Doctor of Philosophy will be required to present their theses by the first day of December, in the second year of their study for that degree.

9. All theses for the higher degrees will be read and defended, if need be, in public.

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## STUDIES, ATTENDANCE AND DISCIPLINE.

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Without special permission of the Faculty no student can drop any course of study until he shall have attended the regular examinations in the same.

Such delinquencies as tardiness, absence, deficiencies, offenses against good order, in the several departments of instruction, are ordinarily dealt with by the Professor in charge of the department in which they occur. Flagrant cases are reported to the faculty for adjudication.

Students who are not in their places at the opening of the semester must present written excuses from their parents or guardians for the delay.

Students are not allowed to absent themselves from town without permission of the President.

The State of Michigan extends the privileges of the University, without charge for tuition, to all persons of either sex, who are qualified for admission. Thus it does not receive patronage, but is itself the patron of those who seek its privileges and its honors. It cannot, however, be the patron of idleness or dissipation. Its crowded classes have no room except for those who assiduously pursue the studies of their choice, and are willing to be governed in their conduct by the rules of propriety.

Students are suspended or dismissed, whenever, in the opinion of the Faculty, they are pursuing a course of conduct seriously detrimental to themselves or the University.

The following are extracts from the by-laws of the Regents:

"Concerted absence from any appointed duty by a class or any number of students together, will be regarded as a great violation of good order, and will be followed by suspension or dismissal, at the discretion of the Faculty."

"Whenever any Faculty is satisfied that a student is not fulfilling, or likely to fulfill, the purpose of his residence at the University, or is for any cause an unfit member thereof, the President shall notify his parents or guardians, that they may have an opportunity to withdraw him, and if not withdrawn within a reasonable time he shall be dismissed."

The following rules concerning examinations have been adopted by the Faculty:

1. Any student who is found using illegitimate helps for passing an examination thereby renders his examination void, and shall not be re-examined until the next regular examination in the Course which he has thus failed to pass.

2. The requirement above mentioned shall also apply to any student who is absent from any regular examination without permission.

3. Any student who is enrolled as a member of a class, whether he be a candidate for a degree or not, is required to attend the examination of the class: and any violation of this rule shall be deemed a forfeiture of the privileges of this Department of the University.

4. A student who is reported as "*Not Passed*" shall receive no credit for the work pursued, and shall be required to pursue the course again in the regular class-room exercise.

5. A student who is reported as "*Conditioned*" must remove the deficiency not later than *one year* from the date of the examination in which the condition was incurred; otherwise, the study which was passed conditionally shall count for nothing towards graduation.

6. A student whose examination is reported as "*Incomplete*" shall be credited with his work only after passing a supplementary examination.

# DEPARTMENT OF Medicine and Surgery.

## I. IMPROVED AND EXTENDED COURSE OF INSTRUCTION.

The Course of instruction now comprises *three* collegiate years' of *nine months* each. Students who matriculated prior to 1880 will, however, be allowed to graduate upon the conditions which were in force at the time of their matriculation.

The college year begins October 1st, and ends in the last week of June. It is divided into two semesters to correspond with the arrangement in the Literary Department.

In this extended Course the studies are arranged in the following order:

FIRST YEAR.—Anatomy, Physiology, Chemistry, Materia Medica and Therapeutics.

SECOND YEAR.—Continuation of Anatomy, Physiology, Chemistry, Materia Medica and Therapeutics; with Pathology, Medical Chemistry and Clinical Medicine and Surgery.

At the end of the second year final examinations take place in Chemistry, Anatomy, Physiology, Materia Medica and Therapeutics.

THIRD YEAR.—Practice of Medicine, Surgery, Obstetrics and the Diseases of Women and Children, Ophthalmology and Otology, with Clinical Medicine and Surgery.

The above list will be understood to include all the special studies which appertain to and form an essential part of the general subjects enumerated. Such are; Histology Physiological and Pathological; Laboratory work in Medical Chemistry in Microscopy and in Electro-Therapeutics; Qualitative,

Physiological and Pathological Analyses ; Toxicology ; Physical Diagnosis, etc.

Students properly qualified but who are not candidates for the degree of M. D., may enter the college at any time, and pursue such studies as they may select, receiving special certificates for the time spent and for the subjects pursued. Students may also be admitted to advanced standing, by passing a satisfactory examination in the studies already pursued by the class into which entrance is desired ; but no student will be admitted to examination for the third or Senior year unless he has already attended a full course of lectures at some Medical College in good standing with the profession. Students who may thus be admitted to advanced standing will be required before graduating to furnish a certificate of having been engaged in the study of medicine under a competent preceptor three full years including the time spent in college. Such certificate will not be required of students who take the full Course (three years) of study in this college.

The final examinations will be conducted, in part at least, in writing. Written examinations will also be held in the closing week of each semester and the student may be called upon to write upon some theme assigned by the instructor or selected by himself, the essay, if required, to be defended before the class. In consequence of the prominence given to written examinations through the Course, no graduating thesis will be required.

## II. THE LECTURE COURSE.

In accordance with these arrangements the thirty-first annual course of lectures will commence on Friday, October 1st, 1880, and continue until the last Tuesday of June, 1881, with a recess during the holidays.

Four didactic lectures will be delivered daily. Quizzes upon the subjects of these lectures will also be held daily by the assistants to the various chairs. Clinics are held in the college every Wednesday and Saturday, for both medical and surgical cases, at which time examinations are made, prescriptions given,

and surgical operations performed, gratuitously to patients, in the presence of the class.

### III. TERMS OF ADMISSION.

Every candidate for admission to the Department of Medicine and Surgery must be eighteen years of age, and must present to the Faculty satisfactory evidence of a good moral character.

Unless already graduates or matriculates of the University or of some literary or scientific college, or graduates or advanced members of some academy or high school, or unless holding certificates from some public school board of being properly qualified as teachers; or unless having certificates based upon an examination by some regular medical society of being properly qualified to engage in the study of medicine, all candidates must be examined as to their elementary education and their fitness to enter the college and pursue properly and profitably the technical study of medicine. The examination will be in writing and will include an account of the candidates' educational advantages, and answers upon such questions of Arithmetic, Geography, History, Forms of Government and current events as shall show their general intelligence; and particularly will they be required to correct imperfect English, and to show their ability to express ideas correctly in writing. Since many present themselves a long time after completing their school education, the examination will not be technical, nor in the rules of school books, which are often soon forgotten, but it will be more to exhibit the results of previous training, and to indicate their present practical capacity, and their ability to appreciate the technical study of medicine. Such an examination is believed to be quite as effectual in guarding the profession from the introduction of illiterate and unworthy members as the requirements of a limited specified amount of school-book knowledge, to be studied up for the occasion.

These preliminary requirements are not now of as high an order as it is hoped they will before long be made, but they are intended to be as exacting as is fairly practicable and con-

sistent with the interests and rights of the profession and the people.

Examinations will be held at 2 P. M. on Wednesday and Thursday, September 29 and 30, 1880. Candidates are required to present themselves on one of these days, as they are expected to be in attendance on the first day of the term, at which time the regular course of instruction will commence. To provide for cases in which it is absolutely impossible for the candidates to be present at this time, supplementary examinations will be held at such times as may be determined upon by the Faculty, but no excuse, except of an urgent character, will be accepted for failure to appear at the first examination.

Before admission to examination every student is required to present to the Dean of the Faculty the Treasurer's receipt for the payment of the matriculation fees and annual dues. It will therefore be necessary for the candidates to apply first to the Steward at his office in the University Hall, register their names as students in the Department of Medicine and Surgery, and then pay their fees to the Treasurer. In case of rejection, the money paid preliminary to examination will be refunded by the Treasurer.

In answer to many inquiries, it is thought desirable more explicitly to state, that no previous study of medicine is required for admission to the college, any person of proper moral character, and who possesses the above described requisite elementary education, being eligible for admission.

#### IV. ADMISSION OF WOMEN.

Women are admitted to this College, as to all other Departments of the University, on the same conditions that are required of men. It is proper to state, however, that the course of instruction for women, though equal in all respects to that provided for the men, is for the most part, given separately, the two classes being together only in the study of Chemistry and at the public clinics. Ample provision has been made for the women's classes in the way of lecture rooms, dissecting rooms, etc.

## V. CONDITIONS OF GRADUATION.

To be admitted to the degree of Doctor of Medicine, all students must present evidence of the possession of a good moral character, of being twenty-one years of age, of having successfully pursued the study of Practical Anatomy and Practical Chemistry, and (unless the full course of study has been taken in this college) of having been engaged in the study of medicine for the period of three years, including the time spent in attendance upon lectures. He must also have passed satisfactory examinations on all the studies included in the full course of instruction, and if admitted to advanced standing in this college, he must have attended at least two full courses of medical lectures, the last of which must be at this college.

It is proper to remark that the two medical schools in this University are distinct organizations, and that, under the regulations established by the Regents, the professors in one school are not called to take any part in conducting the final examinations of students in the other, or in recommending them for graduation, or in signing their diplomas.

## VI. FACILITIES FOR INSTRUCTION.

The Department of Medicine and Surgery is abundantly supplied with plates, photographs, models, specimens, preparations, apparatus and instruments, for the purpose of illustrating the different studies embraced in the course. The apparatus in the Department of Chemistry and of Chemical Physics, is probably unsurpassed, if indeed it be equalled, by that of any medical college in the country. Additions are made from time to time to these collections by special appropriations by the Board of Regents, so that the Faculty are able to adopt every new method of illustration, and to exhibit to the classes each year all important improvements in the way of instruments and apparatus that are employed in the practice of medicine and surgery, and to show their application.

The museums of Professors Ford and Sager, embracing several thousand specimens, which are the result of many years' labor in the collection and preparation of materials intended



to aid directly in teaching, have now become the property of the University, and are used in the daily work of the classrooms. These museums contain a valuable collection of bones, illustrating healthy as well as diseased conditions, and showing the various changes that occur from infancy to old age, and the processes of first and second dentition; dissections, general and partial, of the vascular, nervous and muscular systems, both normal and abnormal; models in wax, papier maché and plaster, of various portions of the body, illustrating morbid growth, skin diseases, etc.; preparations in the comparative embryology, neurology and craniology of the vertebrata; human embryology, and anatomy and pathology of the diseases of women, etc. The collection of monstrosities, both single and double, of man and the lower animals, is one of the largest in the United States.

The department of the museum illustrative of *Materia Medica*, consists of a very complete suite of crude organic medicinal substances, embracing between five and six hundred specimens imported from Paris, finely displayed and arranged according to their order in natural history; besides about one thousand other specimens of simple mineral and vegetable substances, and pharmaceutical and officinal preparations, active principles, etc., arranged in groups convenient for study. Medicinal botany is further illustrated by between one and two hundred large finely colored plates.

The above collections, to which additions are made yearly, are catalogued and arranged in cases. The museum thus affords a secure depository for objects of interest and value, and it is to be hoped that the alumni and other friends of the University will continue their generous donations of such materials.

Ample supplies of material for the purposes of practical anatomy are always on hand, and special attention is given to this important study. Material for this work is furnished as abundantly, and at as low rates as at other institutions of the kind.

The Chemical Laboratory is one of the largest and best

equipped in the United States, and every student before he can receive the degree of M. D., is required to take a course of practical medical chemistry, which requires, according to the expertness of the student, from ten to sixteen weeks of Laboratory work for two or three hours each afternoon when the lectures are not being delivered.

The required work in the Laboratory of Chemistry consists of two branches, Qualitative Chemistry, and the Analysis of Urine. In the first branch—Qualitative Chemistry—students are taken in classes of limited numbers, for daily drill in the class-room, to direct the daily practice in the Laboratory. The work of each class continues about seven weeks, after a week of class drill in notation, the classes commencing at such several times of the college year as will be announced in advance. Secondly, Analysis of Urine, in daily Laboratory practice, for five to seven weeks, with accompanying lectures.

By action of the Faculty of the College of Medicine and Surgery, two extended *optional courses* have been established, one in Physiological and Pathological Chemistry, and another in Toxicology. The *first* will embrace analysis of the Blood, Urine, Gastric Juice, Brain, Bile, Bone, Muscles, and other fluids and solids of the body. The *second* will embrace courses of Qualitative and Quantitative Analysis, and the special examination of foods and of the tissues and fluids of poisoned animals, for the detection of the various mineral and organic poisons. Each of these special courses, which are not required for graduation, employ about one collegiate year of Laboratory work. Students willing to devote time to *original work* in physiological chemistry or other branches, after due preparation, are given the fullest encouragement and coöperation. Also, courses in Quantitative Analysis, and in Pharmaceutical Preparations, are open to students of medicine who may desire such special training.

By an act of the Legislature of Michigan, a liberal appropriation for the equipment and conducting of a Physiological Laboratory has been made; and microscopes, a stereopticon, sphygmograph, and numerous other instruments for extended

practical work have been procured, and are in daily use. By the coöperation of the Professors of Anatomy, Physiology, and Pathology, and with efficient instructors the students in the College of Medicine and Surgery, without additional charge, thus have opportunities of practical instruction in Experimental Physiology and Histology, both physiological and pathological; and this, supplemented by instruction in Pathological Anatomy and Medical Chemistry, is designed to afford facilities to students for minute and specific scientific study and research exceedingly rare in this country, the want of which is deeply felt by all advanced medical practitioners.

Junior students will have an opportunity under competent instruction to study Comparative Anatomy and Physiology practically by dissecting various animals, and while becoming familiar with structures and tissues, will also acquire dexterity in the use of instruments preparatory to work upon the human cadaver.

Recognizing the importance of combining clinical with didactic instruction, College Clinics have for years past been conducted on Wednesdays and Saturdays during the session, for Medical, Surgical and Ophthalmic patients. These are examined, prescribed for, and when necessary, operated upon before the class; and large numbers, especially of chronic cases, from this and neighboring States, have availed themselves of these privileges.

By the liberality of the last two Legislatures of the State of Michigan, aided by the city of Ann Arbor, and under the care of the Board of Regents, a Hospital has been established, and new pavilion buildings have been erected upon the University grounds of sufficient capacity for a large number of patients. It is now thoroughly equipped and well supported, and is in immediate charge of a competent house surgeon and physician and an experienced matron. The whole is placed under the direction of the Faculty of the College whose members will regularly attend (each upon such cases as come within his special department) upon the patients, and will give careful clinical instruction in the wards to the advanced students

of the College. A new and spacious clinical amphitheatre in connection with the hospital has this year been erected by the Regents.

The Hospital will be kept open for patients applying from this and other States during the whole year, the only restriction being that no contagious diseases are admitted.

The expense to patients will be only for their board and for unusual appliances and medicines, the services of the Faculty being rendered gratuitously.

Under the present organization, patients are much better accommodated, and clinical instruction is rendered more systematic and efficient than has hitherto been possible.

Besides these aids in study, the students in medicine are allowed free access to the general botanical, zoological and geological cabinets of the University, which are estimated to contain 225,000 specimens. The General Library contains about 28,000 volumes, of which some 2,000 are medical works. A complete catalogue of the library, arranged both by the names of authors and by subjects, is accessible to all students. The leading medical periodicals of this country and of Europe are taken and kept on file in the Library.

## VII. FEES AND EXPENSES.

The fees,\* which must be paid in advance, are as follows:

**MATRICULATION FEE.**—Residents of Michigan, \$10; non-residents, \$25.

**ANNUAL DUES.**—Residents of Michigan, \$20; non-residents, \$25.

**GRADUATION FEE.**—For all alike, \$10.

The admission or matriculation fee is paid but once, and entitles the student to the privileges of permanent membership in any department of the University. The annual tax is paid the first year, and every year thereafter. For other details of expenses, see pp. 21-22.

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\* No portion of the fees can be refunded to students who leave the University during the academic year, except by order of the Board of Regents.

## VIII. TEXT AND REFERENCE BOOKS.

Any of the following text-books in each department will answer the necessities of the student; and wherever a preference exists, it is given to those first in order on the list.

ANATOMY.—Gray, Wilson, Leidy, Peaslee, Stricker.

HISTOLOGY.—Frey's Compendium of Histology. Stricker.

PHYSIOLOGY.—Dalton, Flint, Foster, Küss, Kirke. *For Reference*.—Carpenter, Sanderson's Handbook for the Physiological Laboratory, Foster and Langley's Practical Physiology.

CHEMISTRY.—*In General Chemistry*.—Miller's Chemical Physics, Miller's Inorganic Chemistry, or Eliot and Storer's Manual of Chemistry. *For Laboratory*.—Douglas and Prescott's Analysis, Vaughan's Physiological Chemistry, Wormley on Poisons.

MATERIA MEDICA AND THERAPEUTICS.—H. C. Wood, Jr., Stillé, Waring, Ringer, Biddle. *Special Subjects*—Headland on the Action of Medicines, Anstie on Stimulants and Narcotics, Harley on the Old Vegetable Neurotics.

PATHOLOGY AND PATHOLOGICAL ANATOMY.—Wagner, Green, Rindfleisch, Billroth, Paget, Williams's Principles. *For Reference*—Rokitansky and Virchow.

OBSTETRICS.—Playfair, Meadows, Leishman, Tyler Smith, Byford, Schröder, Cazeaux, Hodge. *Special Subjects*—Tanner on Pregnancy, Barnes on Obstetric Operations, Elliott's Obstetric Clinic, Barker on Puerperal Diseases.

DISEASES OF WOMEN.—Thomas, Emmet, Byford, Hewitt, West, Barnes, Hodge. *Special Subjects*—Tilt on Uterine Therapeutics, Klob on Pathological Anatomy of the Female Sexual Organs, Peaslee on Ovariectomy, Sims on Uterine Surgery, Emmet on Vesico-Vaginal Fistula.

DISEASES OF CHILDREN.—J. L. Smith, Vogel, Tanner, Meigs and Pepper. *Special Subjects*—Eustace Smith on the Wasting Diseases of Infancy and Childhood, Combe on the Management of Infancy, Routh on Infant Feeding, Holmes or Guersant on the Surgical Diseases of Children.

PRACTICE OF MEDICINE.—Aitkin, edited by Clymer, Niemeyer, Roberts, Flint, Watson, Tanner, Wood. *Special Subjects*.—Walshe or Flint on the Lungs, Williams on Pulmonary Consumption, Flint or Stokes on the Heart, Roberts or Beale on Urinary Diseases, Budd on the Stomach, Chambers on Indigestion, Murchison on the Liver, Da Costa on Medical Diagnosis, Loomis on Physical Diagnosis. *For Reference*.—Reynold's System of Medicine, Trousseau's Clinical Lectures, Ziemssen's Cyclopaedia.

**SURGERY.**—Syme, edited by Maclean, Erichsen, Hamilton, Druitt. *Special Subjects*—Billroth on Surgical Pathology, Hamilton on Fractures and Dislocations; Bumstead on Venereal Diseases; Sayre on Club Foot; Sir Henry Thompson or Gouley on Genito-Urinary Organs; C. Henri Leonard on Bandaging. *In Minor Surgery and Surgical Appliances.*—Bell, Le Gros Clarke, Anandale, Wales, Sargent. *For Reference*—Gross's System of Surgery; Holmes's System of Surgery.

**OPHTHALMOLOGY AND OTOTOLOGY.**—*On the Eye*—Scelberg Wells, Stellwag, Metz, Brown on the Ophthalmoscope. *On the Ear*—Roosa or Toynbee with Hinton's Supplement, Burnett's Treatise on the Ear.

The student, who is commencing a course of reading without an instructor, is recommended to devote the most of his time for the first year to the elementary branches, Anatomy, Physiology, and Chemistry, both general and medical; then advancing to the other studies to select one of the first mentioned text-books in each department, passing to the "*special subjects*" only when near the completion of the course, or as he may desire for particular reasons to become more fully informed on such subjects. The books mentioned are standard authorities, and will form a good nucleus for a medical library.

## IX. ASSIGNMENT OF SEATS.

Students on arriving in Ann Arbor can obtain the necessary information in regard to rooms, board, etc., by calling at the Steward's office. Seats in the Lecture rooms are assigned by selection to students in the order of registration on the Treasurer's books, and each student is expected to occupy during the session such seat as may be assigned to him. In the clinical lectures the graduating class, by courtesy, are allowed the privilege of the seats nearest the operating table and lecture desk.

Letters of inquiry may be addressed to the "Dean of the Faculty of the Department of Medicine and Surgery," Ann Arbor, Michigan.

By comparing the present provisions with those of former years it will be seen that very great advancements have been made in the means offered for a complete and thorough medical education. The plan of nine months' sessions and three

years' graded course in medical schools in this country, inaugurated by Harvard College, has been followed by the venerable University of Pennsylvania in a graded course, but without extension of the length of the sessions; and it is a cause of congratulation that this extension of the course in the University of Michigan, long since recommended by the Faculty, and more recently by the Alumni of this College, and others of the medical profession of the State, has at length been accomplished. The great importance of this movement must be evident to all who appreciate the vast extension of medical science, which has occurred since medical schools were established among us with four months' terms, or who compare the short courses prevalent in this country with those so much longer in Europe. The great fault with many American medical students is a desire to rush speedily over their course of study and enter, though but partially prepared, into the responsible duties of active practice. It is found, however, by the increase in the size of our classes since the extension of the term of instruction has been effected, that there are already many, and it is hoped that the number will increase, who desire more thorough and extended preparation, and that since by the liberality of the State the means of securing this thorough training are put within their reach, still more who have talent, energy, perseverance and high aims will avail themselves of the increased advantages offered.

In the plan of the extended course provided, and which we are sure it will be for the interest of every medical student to take, the attempt has been made so to combine a successive or graded course of study with reviews by repetition of the more important lectures, as to obviate the serious objection of dismissing one part of a connected subject before its relations to other parts can be seen and appreciated, and to avoid also the confusion incident to the presentation of so many parts of the general subject to the mind of the student at the same time and at an early period of his studies.

This extended course affords time for the teaching and study of subjects not generally, or very imperfectly, taught in

our public schools—such as Ophthalmology, Dermatology, Diseases of the Mind, Preventive Medicine, Medical Jurisprudence, Pathological Anatomy, etc., and especially will it give more time for thorough work in the Laboratories now provided. Though not fully supplying the defects of preliminary education, this longer course, accompanied with repeated examinations and written exercises, will supplement the deficiencies of earlier training, and of itself will be a most efficient means of mental discipline, and of literary as well as scientific culture.

This plan which has been adopted with the view of avoiding the impracticable and of securing real and decided advancement, is presented in the hope that it will commend itself to the judgment and support of the profession. Upon the members of the profession who have encouraged such advancements by repeated recommendations, the schools making such improvements should be able to depend for more substantial encouragement than mere advice. Should physicians while professing a desire for reform, send the students whom they control to schools where diplomas are soonest and most easily obtained, the cause of advanced medical education must suffer. Upon their consistency and practical efforts for reform, the success of these experiments must depend.

Should students be ready to commence the study of medicine near the opening of the term in October, it is advised that they enter the college at once and remain during their three years of pupilage—the instruction in the graded course being adapted to beginners. Should it be convenient to commence medical studies at a period distant from the beginning of the college year, they should procure one of the text-books in Anatomy (Gray's), in Physiology, in Chemistry, and perhaps in General Pathology and in Materia Medica, and a *Medical Dictionary*. A study of such works, even without a preceptor, will afford some general acquaintance with these fundamental subjects, and will, at least, give a knowledge of *terms* which will be of service in more readily comprehending the lectures.



# Department of Law.

## I. DEPARTMENT OF LAW.

In this Department it has been the constant endeavor of the Faculty to make the instruction imparted and the advantages afforded equal to any attainable elsewhere in the country; and in this they believe they have been entirely successful. No effort will be spared to make the Department deserve in the future a prosperity like that it has hitherto enjoyed. A spacious building is devoted to its accommodation, with ample debating and society rooms, and in every respect the conveniences of the Department are exceptionally good.

## II. TERMS OF ADMISSION.

The requisites for admission are, that the candidate shall be not less than eighteen years of age, and be furnished with a certificate giving satisfactory evidence of good moral character. Some previous reading in the law is desirable, but it is not absolutely required, though it is expected that all students will be well grounded in at least a good English education, and capable of making use of the English language with accuracy and propriety. The course of instruction for the two terms has been carefully arranged, with a view to enable students to enter profitably at any stage of their studies, and it is not important which course of lectures is first taken.

## III. COURSE OF INSTRUCTION.

The design of the Department is to give instruction that shall fit students for practice in any part of the country. The course will embrace the several branches of Constitutional, International, Maritime, Commercial and Criminal Law, Med-

ical Jurisprudence, and the Jurisprudence of the United States; and will include such instruction in Common Law and Equity Pleading, Evidence and Practice as will lay a substantial foundation for practice in all departments of law.

The course will be continued through a period of two years, with one term in each year, commencing on the first day of October, and continuing until the Law Commencement in the last week of March ensuing. Ten lectures with accompanying examinations will be delivered each week during the term. For one year they embrace the following subjects:

The Origin and History of Equity Jurisprudence.

The General Heads of Equity Procedure and Nature and Forms of Equitable Remedies.

Criminal Law, and Medical Questions bearing on it;

The Laws of Evidence, and their application to Legal Proceeding; Contracts;

Title to personal Property by Gift, Inheritance, Sale, Mortgage, Assignment, and by Operation of Law;

Bills of Exchange and Promissory Notes, and Commercial Law generally;

Estates in Real Property; Easements;

Title to Real Property; Domestic Relations.

For the year following the following subjects:

Some Special Heads of Evidence, and Equity Jurisprudence;

Equity Pleadings and Practice; Jurisprudence of the United States;

Shipping and Admiralty; Bailments;

Agency; the Law of Corporations; Common Law Pleading and Practice; Constitutional Law; Partnership; Uses and Trust; Wills, their Execution, Revocation, and Construction.

The Administration and Distribution of Estates of Deceased Persons.

Moot Courts are held from time to time during the term, for the argument of cases previously given out by the Professors by students designated to discuss them. They will be presided over by the Professor lecturing for the day, who, at the conclusion will review the arguments and give his decision upon the points involved. Club Courts will also be organized among the students, to be arranged and conducted by them-

selves, with such assistance from the members of the Faculty as may be desired. These Courts, thus far, have been found alike interesting and useful to those who have participated in them.

#### IV. LIBRARY.

A well selected and very useful Law Library is open for consultation by students at all reasonable hours. The rooms of the Professors are near the Library, and they will be ready at all times to furnish to students aid in their studies and investigations. The General Library of the University is also at all times open to the students of this Department.

#### V. DEGREES.

The degree of Bachelor of Laws will be conferred upon such students as shall pursue the full course of two years in this Department, and pass an approved examination. It will also be conferred upon those who, having attended another Law School for a period equal to one year of our course, or practiced law for one term under a license from the highest court of general jurisdiction in any State, shall also pursue one year's course in this Department, and pass a like examination. In Michigan, the degree entitles the resident graduate to an immediate license to practice in all the courts of the State.

Candidates for degrees will be required to prepare and deposit with the Faculty, at least one month before graduation, a dissertation not less than forty folios in length, upon some legal subject selected by themselves. These theses will be filed and preserved in the Library.

#### VI. BOOKS.

While several copies of each of the leading text-books will be found in the Library; it is exceedingly desirable that students should supply themselves with such as they may need at their rooms. The Professors will lend them aid in making proper selections, and no loss will be incurred, as the books will be found essential in subsequent practice. Students will

find that it will greatly facilitate their studies to have them at hand at all times.

## VII. FEES AND EXPENSES.

The fees,\* which must be paid in advance, are as follows:

MATRICULATION FEE.—Residents of Michigan, \$10; non-residents, \$25.

ANNUAL DUES.—Residents of Michigan, \$20; non-residents, \$25.

GRADUATION FEE.—For all alike, \$10.

The admission fee is paid but once, and entitles the student to the privileges of permanent membership in any Department of the University. The annual tax is paid the first year, and every year thereafter. For other details of expenses, see pp. 21-22.

## VIII. GENERAL REMARKS.

The Faculty are frequently applied to by letter for advice upon the question of whether it is desirable to enter upon the study of law, and acquire some general knowledge of the principles, before admission to the Department. It is somewhat difficult to lay down general rules that can be advantageously applied in all cases, but the Faculty are of opinion that for the first year at least, more positive benefit is received from the lectures, and more positive advancement in the law made, by students who have read before coming, at least the Commentaries of Blackstone, than by those who are beginners here. But the Faculty are aware of the difficulty experienced by the student in giving proper direction to his reading and investigation at the beginning; and they do not therefore make it a condition of admission that there shall be any prior reading in law whatever. The want of such prior reading will, doubtless, in many cases, be fully compensated in the aid the beginner may receive here in the outset. It is not often that the student receives the needed assistance except in law schools. The active practitioner engrossed with the cares of

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\* No portion of the fees can be refunded to students who leave the University during the academic year, except by order of the Board of Regents.

business, cannot—or at least, as proved by experience, does not—furnish the students who place themselves in his charge, the attention and assistance essential to give a correct direction to their reading, and to teach them to apply it usefully and aptly in their subsequent professional life. The reading of a student in a law office is practically the study of the law by himself, and without assistance; and he neither acquires that familiarity with books, and that facility of reference which it will be the aim of this department to assist in acquiring, nor learns anything of the practical application of legal principles, beyond what he may pick up from observation of the practice of his preceptor. The effort here will be to make not *theoretical* merely, but *practical* lawyers; not to teach principles merely, but how to apply them. To this end, the Moot Court will be made the forum for the discussion of such practical questions as must frequently arise in a professional career, at the bar; and the attention of the Faculty will be directed not less to the application of the points discussed to actual cases, than to the elucidation of the legal questions. An opportunity will be afforded all the senior students to participate in this court, and they will at all times have such assistance in their Club Courts as they find themselves in need of.

While thus endeavoring to impart legal knowledge, the fact will not be lost sight of, that a high moral standard is a most important requisite to a successful and honorable career; and no pains will be spared in impressing this fact upon students, and in inculcating a high tone of professional ethics and action.

Those who desire any further information concerning the Law Department, may make their inquiries of Hon. T. M. COOLEY, Dean of the Law Faculty.

# School of Pharmacy.

It is the design of this department to qualify its graduates to become practical pharmacists, general analysts, and chemical manufacturers, and to give them the training of systematic work in exact science. Class instruction is made to coöperate with laboratory practice in all the topics of the course. The class-work comprises both recitations and lectures—given in progressive order and not repeated to the same students. The required work in the chemical and microscopical laboratories employs three to four hours daily through the two collegiate years, embracing three semesters of analytical chemistry, one semester of micro-botany, and one semester of pharmaceutical chemistry.

## REQUIREMENTS FOR ADMISSION.

Applicants are admitted upon diplomas of graduation from graded High Schools, and upon certificates of good standing in higher educational institutions. Other applicants are admitted upon examination in the following branches:

1. In the correct writing of English.
2. In Arithmetic, and Algebra through simple equations.
3. In Latin, amounting to one year's study. Jones's First Latin Book, or Harkness's Latin Reader, or an equal amount in other text-books.
4. Or, instead of Latin, German to the extent of a year's study.

This examination will begin on the 24th day of September, 1880, at 9 A. M.

## STUDIES REQUIRED IN THE FIRST YEAR.

1. *Pharmacy*.—Rudiments of Chemical Philosophy; Metrology; Chemical Problems; Study of Pharmacopœias; Pharmaceutical Ope-

rations; Heat and its uses. Lectures and Recitations, three times a week, through the first semester. Examination at the close of the course.

2. *Chemical Physics and Inorganic Chemistry*.—Illustrated lectures three and four times a week, with the use of Miller's *Chemical Physics* and Attfield's, or Tidy's *Chemistry*. Remsen's *Theoretical Chemistry* is advised as additional aid. The examination is held at the close of the first year.

3. *Botany*.—Recitations with Gray's *Lessons* and practical studies with fresh plants (use of Gray's *Manual*) daily from the spring recess to the week before the June Commencement. Special attention is given to indigenous medicinal plants.

4. *Qualitative Analysis*.—Drills in Chemical Notation preparatory to Laboratory work begin September 25. Laboratory work begins as early in October as the class is prepared, and continues daily, with daily recitations, until the completion of the course about the 10th of March. The work consists of (1) the study of the bases and acids, practicing with *known material*, and using problems in chemical synthesis; (2) after an intermediate examination, and about the first of December, the *analysis of unknown material* is entered upon by each student independently, with lectures on Analytical Chemistry including a study of oxidations and reductions, in the class-room. Text-books, Douglas and Prescott's *Qualitative Analysis*, and, for General Chemistry, Tidy, or Miller's *Inorganic*. Students must finish this study before entering upon quantitative analysis or pharmacopœial preparations.

5. *Quantitative Analysis*.—(1) Determinations of Densities; (2) Gravimetric Determinations; (3) Volumetric Determinations; (4) Gravimetric Separations. Lectures in quantitative analysis are given three times a week, requiring a study of all the chief separations as well as those performed in the Laboratory. Text-books, Classen's *Quantitative Analysis*, with reference to Fresenius and Sutton.

## STUDIES REQUIRED IN THE SECOND YEAR.

6. *Pharmacology and Micro-Botany*.—Exercises daily through the first semester, as follows: Examination of fresh plants continued for the first six or eight weeks. Then lectures or exercises on structural botany, with reference to the identification of drugs of vegetable origin and the detection of adulterations in foods, condiments and medicines. The lectures alternate with work in the Microscopical Laboratory, embracing a systematic course in examination of a series of commercial articles, with use of Stille and Maisch's *Dispensatory*. Examination at the close of the first semester.

7. *Crystallography*.—Twelve to fifteen lectures on systematic crystallography with exercises in identifying crystals.

8. *Materia Medica*.—Recitations on materia medica proper, and prescriptions, three times a week for four or five months; and lectures on materia medica and therapeutics. A collection of crude drugs and pharmacopœial preparations in the chemical laboratory is used by the class in study for the recitations. Text-book, Farquarson's *Materia Medica*. Examination, at the close of the year.

9. *Pharmacy*.—First, of *Inorganic* materials and the technical history of chemical wares, by dictation of notes, and recitations from works of reference and from laboratory work, until the Christmas vacation. Second, of *Organic* chemistry and materials, dictation of notes, and recitations from *Proximate Organic Analysis*, until the week before the June Commencement. For the first six months of the term, three times a week; for the last three months of the term, five times a week.

10. *Organic Analysis*.—(1) Verification of the reactions of carbon compounds in a series of known mixtures; (2) Qualitative Analysis of a series of organic mixtures; (3) Quantitative estimation of organic drugs. Text-book, Prescott's *Proximate Organic Analysis*.

11. *Toxicology*.—Analysis of food material or tissue material in assumed cases of poisoning and in cases instituted with animals,—including the chief inorganic and organic poisons. Lectures are given. Reference is made to the works of Otto, Wormley, Reese, Taylor, Woodman and Tidy.

12. *Analysis of Urine*.—Normal and abnormal, by qualitative, volumetric and microscopical methods. Text-book, Vaughan. Reference to the works of Hassall, Beal, Thudicum, Burdon-Sanderson. The examination is held on completion of a course of lectures on this subject.

13. *Pharmacopœial Preparations*.—Exercises in each class, U. S. Pharmacopœia; in some of the more elaborate chemical productions; and in the minor performances of extemporaneous pharmacy. Use of the U. S. Pharmacopœia with reference to the Dispensatory, and other works.

14. *The Thesis* for the degree of Pharmaceutical Chemist is required to embody the results of research by the student under direction of the Professor in charge of the subject chosen, which must be accepted by the Faculty as early as the first of March. The investigation may consist in the determination of constants of nature, the correction of chemical formulæ and reactions, the chemical and microbotanical analysis of plants, the trial of methods of analysis or manufacture, the exposure of adulterations and concealed constituents, the collection of a cabinet, the compilation of an index, or personal



research in any branch of pharmaceutical chemistry. A careful comparison of authorities must first be made and references given.

The required *text-books* are named in connection with the work for which they are used, as are also some of the *works of reference* most frequently used. It is very desirable that the student in the second year should have Stille and Maisch's Dispensatory. Attfield's Chemistry is convenient through the course. Students are not required to provide themselves with the works of reference, many of which are provided at the laboratories. Storer's Dictionary of Solubilities and Watt's Dictionary of Chemistry should be very frequently consulted. The following reference works are among those most employed: Roscoe and Schorlemmer's Chemistry; Schorlemmer's Organic Chemistry; Gmelin's Hand-book of Chemistry; Bentley and Trimen's Medical Plants; Wittstein's Chemical Analysis of Plants; Husemann's Pflanzenstoffe; Hoffman's Medical Chemistry; Hassall's Adulterations; Prescott's Examination of Alcoholic Liquors; Vogel's Nahrungs und Genussmittel; Hager's Untersuchungen und Pharmaceutische Praxis; Heppe's Chemischen Reactionen; Wagner's Technology; Planchon's La Determination des Drogues Végétales; Flückiger and Hanbury's Pharmacographia; Flückiger's Pharmaceutical Chemistry; Dragendorff's Works. The current numbers and complete sets of the leading foreign and American journals are kept accessible to the student.

THE COLLEGE YEAR in this school commences September 24th, for first year students; and October first for second year students, and closes at the June Commencement. Graduates receive the Degree of Pharmaceutical Chemist.

Concerning Expenses of Chemical Laboratory work, see page 60. The average cost of material in the Chemical Laboratory has been about one dollar and twenty cents per week for each student in Pharmacy. For details of University fees and of other expenses see pp. 21-22.

The order of exercises is given on the following page.

## ORDER OF EXERCISES.

## FIRST YEAR—FIRST SEMESTER.

*Class Work.*

## HOURS.

8½ to 9½ { Analytical Chemistry (4)\*—daily.  
 9½ to 10½ { Pharmacy (3)—three times a week.

*Laboratory Work.*

1 to 5 Qualitative Analysis (4)—daily.

## SECOND SEMESTER.

*Class Work.*

9½ to 10½ Quantitative Analysis (6)—three times a week.  
 10½ to 11½ { Pharmacy (1)—three times a week—until recess.  
 { Botany (3)—five times a week—from the recess to the close.  
 11½ to 12½ General Chemistry, three times a week—after recess.

*Laboratory Work.*

1½ to 5½ { Qualitative Analysis (4) (concluded) daily.  
 { Quantitative Analysis (5) daily, or Pharmacy Preparations (13).

## SECOND YEAR—FIRST SEMESTER.

*Class Work.*

11½ to 12½ { Pharmacology and Micro-Botany (6), three times a week.  
 { Pharmacy (9)—three times a week.  
 9½ to 10½ { Crystallography (7)—twelve or fifteen lectures.  
 10½ to 11½ Quantitative Analysis (6)—three times a week—to holidays.  
 5 to 6 { Materia Medica Recitation and Lectures (8)—three times a week.

*Laboratory Work.*

9½ to 11½ Micro-Botany (6)—three times a week.  
 1 to 5 { Toxicology (11) Anal. Urine (12).  
 { Pharmacopoeial Preparations (13) or Quantitative (5).

## SECOND SEMESTER.

*Class Work.*

9½ to 10½ { Pharmacy (9) } three times a week—to recess.  
 { } daily, after recess.

*Laboratory Work.*

1½ to 5½ { Organic Analysis (10) }  
 { Original Work (13) } daily.

\* The figures in parentheses refer to the numbering of the courses given in the preceding pages.

## THE

# Homœopathic Medical College.

### I. ENLARGED AND EXTENDED INSTRUCTION.

The provision of the Legislature has enabled the Board of Regents to meet the growing demands for a more advanced medical education by extending the course of teaching from six to nine months in each year, and by enlarging the curriculum. Henceforth the session includes the entire University year, extending from October first to July first.

In addition to this extension of the term, a graded course to include three years' study will be provided. The *first* year of this course will include Anatomy, Histology, Physiology, Chemistry and Materia Medica, with the necessary practical work in the Chemical, Anatomical and Physiological Laboratories. This year's Materia Medica work will be devoted to teaching the source, nature, origin and method of preparing remedies, with their physiological action, and a general survey of their pathogenesis.

In the *second* year the above studies will be reviewed, and the student will take up Pathology, Pathological Anatomy, Chemistry, in its application to Physiology and Pathology, Theory and Practice of Medicine, Principles of Surgery and Minor Surgery, and Hygiene or Preventive Medicine. The Materia Medica work of this year will consist of special analyses and syntheses of drug-provings. In addition the student will attend such didactic and clinical lectures on the Practical Branches as his progress shall render advisable.

At the end of the *second* year, *final examinations* will be held in Anatomy, Histology, Chemistry and Preventive Medicine.

In the *third* year, Pathology and Pathological Anatomy will be reviewed, and the student will enter upon Ophthalmology, Obstetrics, Diseases of Women and Children, Surgery, and the Theory and Practice of Medicine, with practical instruction in Diagnosis and Treatment.

In this course Therapeutics and Experimental Pathogenesis will be taught—the latter with all the aids of the Chemical and Physiological Laboratories. Every opportunity will be given to those desiring to make original investigations in drug action.

No student shall be recommended for the degree of Doctor of Medicine who has not passed a thorough and satisfactory examination on all the subjects taught in the extended course, and who has not been in regular attendance upon Medical Lectures in this or some other respectable school of Medicine for at least two full courses, the last of which must have been in this College. *After the session of 1879–80* no student shall be permitted to graduate except at the June Commencement.

The final examination of all future matriculates will be conducted, in part at least, in writing; and during the last session each candidate for graduation will be required to submit to written examinations, and may be called upon to write upon some theme assigned by the instructor or selected by the student: the essay, if required, to be defended before the class. In consequence of these exercises a final thesis will not be required.

Properly qualified students may enter the College at any time, and pursue such of the studies therein taught as they may select, and they shall receive special certificates for the time spent and the study or studies pursued. By action of the Regents special rates have been established for the benefit of such students. For practical laboratory work this arrangement affords an opportunity of which it is hoped many will be glad to avail themselves, and the advantages are second to none in America.

The Board of Regents have enacted that henceforth all

examinations of matriculates of this College for its degree shall be made by its Faculty and its Board of Examiners.

## II. THE LECTURE COURSE.

In accordance with these arrangements the sixth annual course of lectures will commence on Friday, October 1st, 1880, and continue until the last Wednesday of June, 1881, with a recess during the holidays.

Four lectures will be delivered daily; and during the course frequent examinations will take place upon the subjects presented in the lectures. Clinics are held in the college every Wednesday and Saturday, for both medical and surgical cases, at which time examinations are made, prescriptions given, and surgical operations performed, gratuitously to patients, in the presence of the class.

## III. TERMS OF ADMISSION.

Every candidate for admission to this college must be eighteen years of age, and must present to the Dean satisfactory evidence of a good moral character. Unless already a matriculate of the University or a graduate or advanced member of some respectable college, academy or high school, or unless holding a certificate from some public school board as being a properly qualified teacher, or unless having a certificate based upon an examination of some legally authorized medical society as being properly qualified to engage in the study of medicine, every candidate shall be examined as to his previous education and his fitness to enter upon and appreciate the technical study of medicine. The diploma, certificate of graduation or of advanced membership, or of teachership or other evidences of qualification from such institutions must be presented to the Dean of the Faculty by the candidate, in order to secure exemption from the examination, which will be in writing, and will cover the ordinary branches of an English education. This examination is not yet so exacting in its demands as we hope soon to be able to make it, but it is intended to test the student's acquaintance with the fundamental branches of

an English education, and his general intelligence and capacity to appreciate and profit by professional instruction.

Examinations will be held at 2 P. M. on Wednesday and Thursday, September 29 and 30, 1880. Candidates are required to present themselves on one of those days, as they are expected to be in attendance on the first day of the term, at which time the regular course of instruction will commence. To provide for cases in which it is absolutely impossible for the candidates to be present at this time, supplementary examinations will be held at such times as may be determined upon by the Faculty, but no excuse, except of an urgent character, will be accepted for failure to appear at the first examination. Certificates of attendance are given for the actual period of attendance only.

Before admission to examination every student is required to present to the Dean of the Faculty the Treasurer's receipt for the payment of the matriculation fees and annual dues. It will therefore be necessary for the candidates to apply first to the Steward at his office in the University Hall, register their names as students in the Homœopathic Medical College, and then pay their fees to the Treasurer. In case of rejection, the money paid preliminary to examination will be refunded by the Treasurer.

#### IV. ADMISSION OF WOMEN.

Recognizing the equality of rights of both sexes to the highest educational advantages, the Board of Regents, a few years since, made provision for the medical education of women, and they are now admitted to this College, as to all other Departments of the University, on the same conditions that are required of men. It is proper to state, however, in answer to numerous inquiries which are made on this point, that the course of instruction for women, though equal in all respects to that provided for the men, is for the most part, given separately, the two classes being together in the lecture room, however, in the department of General Chemistry and in clinics. Ample provision has been made for the women's classes in the way of lecture rooms, dissecting rooms, etc.

## V. CONDITIONS OF GRADUATION.

Those candidates preparing to graduate at the close of their second course of lectures, must announce their intention at the beginning of that course, in order to receive those repeated examinations necessary to attest their qualifications.

Those proposing to receive the full three years' graded course before presenting themselves for graduation, must announce their intention to the Dean at the time of their matriculation, or whenever they have thus determined, so that they may be classified, and receive proper directions respecting attendance and exercises, and have proper places assigned them at the various lectures they may attend, and that records may be kept of their course, attendance and progress. They will from time to time receive certificates of attendance, and of their standing on the subjects in which they have been fully examined.

To be admitted to the degree of Doctor of Medicine, all students must present evidence of the possession of a good moral character, of being twenty-one years of age, of having been engaged in the study of Practical Anatomy and of Practical Chemistry, and of having pursued the study of medicine for the period of three years, including the time spent in attendance upon lectures,—not in addition to this time,—and must have attended three full courses of lectures on the different branches of medical science, the last of which must have been in this college; but to encourage a higher grade of preliminary acquirements, and in recognition of the value to a candidate of an extended course of scientific and literary studies, an allowance of six months from the term of medical studies is made in favor of graduates of the College of Arts and Sciences in this University, and of other respectable literary colleges; and also in acknowledgement of the amount of medical knowledge obtained in a full course of Pharmaceutical study, an allowance of twelve months is made for graduates in the Department of Pharmacy in this University.

## VI. FACILITIES FOR INSTRUCTION.

Students in this college will receive instruction in *Materia Medica*, *Therapeutics*, and *Experimental Pathogenesis* from Prof. Jones; in *Theory and Practice*, and *Clinical Medicine* from Prof. Wilson; in *Surgery*, from Prof. Franklin. *Obstetrical* and *Gynæcological Therapeutics* will be taught jointly by Professors Wilson and Franklin for the present.

For all other studies the students will attend the lectures in the Department of *Medicine and Surgery*, and the lectures and demonstrations in the *Chemical and Physiological Laboratories*. While in attendance upon such lectures and demonstrations they shall be entitled to all the privileges accorded to students in said Department, and shall conform to all the requirements of said Department, so far as they apply to the branches which they pursue.

Liberal provision is made by the Board of Regents for illustrating the various branches of instruction by plates, preparations, specimens and apparatus. The department of chemistry and chemical physics is probably unsurpassed, if indeed it is equalled in the extent and thoroughness of its equipments, by that of any medical college in the country. The museums, containing several thousands specimens, comprise a valuable collection of bones, amply illustrating both physiological and pathological conditions of all ages, and showing the processes of dentition, of growth, and of decay in the osseous system, dried preparations normal and abnormal, of the different tissues of the body, including muscles, blood vessels, nerves, etc.; models and casts illustrating skin diseases, tumors, and pathological changes in the various organs. In the sections devoted to comparative embryology and craniology, and in human embryology, and the diseases of women, the collections are especially interesting. The specimens of monstrosities, both single and double, of man and the lower animals, are very numerous and instructive.

Besides these aids in study, the students in medicine are allowed free access to the general botanical, zöological and geo-



logical cabinets of the University, which are estimated to contain 255,000 specimens. The scientific and philosophical lectures collateral to medicine, which are given in the Literary Department, are also open to our students. The General Library contains about 28,000 volumes, of which some 2,000 are medical works. A complete catalogue of the library, arranged both by the names of authors and by subjects, is accessible to all students. The leading medical periodicals of this country and of Europe are taken and kept on file in the library.

Arrangements have been made by which ample supply of material for the purposes of practical anatomy has been secured, and special attention will be devoted to rendering this important study as advantageous as possible to the student. Experience has shown that *material* can be purchased here abundantly and at reasonable rates.

The Chemical Laboratory of the University provides thorough instruction and suitable appliances for the practical study of all branches of medical chemistry. Two branches—carefully adapted to the common needs of the medical profession—are *required* for medical graduation, namely: (1) Qualitative chemistry, devoted to the study of chemical changes and incompatibilities; and (2) Analysis of Urine, applied to clinical uses and physiological study. In each of these branches students are taken, in class-sections of limited number, for daily drill in the class-room, with daily practice in the laboratory work, each class is prepared in chemical notation by sufficient daily drill; and at the close of the work in each branch, the classes are held to an examination upon the work required. The classes commence at such several times of the college-year as will be announced at the opening of the term.

By action of the Faculty two extended *optional courses* have been established, one in Physiological and Pathological Chemistry, and another in Toxicology. The *first* will embrace analysis of the Blood, Urine, Gastric Juice, Brain, Bile, Bone, Muscles, and other fluids and solids of the body. The *second* will embrace courses of Qualitative and Quantitative Analysis,

and the special examination of foods and of the tissues and fluids of poisoned animals, for the detection of the various mineral and organic poisons. Each of these special courses, which are not required for graduation, employ about one collegiate year of Laboratory work. Students willing to devote time to *original work* in physiological chemistry or other branches, after due preparation, are given the fullest encouragement and coöperation. Also, courses in Quantitative Analysis, and in Pharmaceutical Preparations, are open to students of medicine who may desire such special training.

### MUSEUM.

Arrangements have been entered upon to procure a museum for this college, and some interesting specimens have already been presented. Practitioners and friends of the college are earnestly requested to send to the museum pathological and other interesting specimens, which will be acknowledged and the name of the donor will be printed thereon.

By an act of the Legislature of Michigan, a liberal appropriation for the equipment and conducting of a Physiological Laboratory has been made; and microscopes, a stereopticon, sphygmograph, and numerous other instruments for extended practical work have been procured, and are in daily use. By the coöperation of the Professors of Anatomy, Physiology, and Pathology, and under proper efficient direction, and with capable assistance, the students in the Homœopathic College will have opportunities of practical instruction in Experimental Physiology and Histology, both physiological and pathological; and this, supplemented by instruction in Pathological Anatomy and Medical Chemistry, is designed to afford facilities to students for minute and specific scientific study and research exceedingly rare in this country, the want of which is deeply felt by all advanced medical practitioners.

While all students in the Department are admitted to this Laboratory, the Faculty would suggest to those who desire to enter it, that it would be of great assistance to them to make themselves familiar before admission to the medical school with the general facts of Biology and of Physiology, by such

dissections and experiments as are described in the little manuals of Huxley and Martin, and of Foster and Langley. Instruction in these topics is given in the Department of Literature, Science and the Arts in the University.

Recognizing the importance of combining clinical with didactic instruction, College Clinics have for years past been conducted on Wednesdays and Saturdays during the session, for Medical, Surgical, Ophthalmic and Aural patients. These are examined, prescribed for, and when necessary, operated upon before the class; and large numbers, especially of chronic cases, from this and neighboring States, have availed themselves of these privileges.

On the recommendation of the Board of Regents, the Legislature at their last session, with their usual liberality made an ample appropriation for the establishment of a spacious Amphitheatre and Hospital upon the University grounds, for the exclusive use of the Homœopathic College. The Amphitheatre, which is connected with the Hospital wards, has a seating capacity sufficient for over two hundred students, and is constructed with especial reference to the advantages which students are to derive from clinical instruction. The Hospital is now in readiness for the reception of patients, and is in immediate charge of a competent Resident Surgeon and Physician and an experienced matron. The whole is placed under the direction of the Faculty of the College, who will give regular attendance to the patients of their respective departments and careful clinical instruction in the wards to the senior students of the College.

The Hospital will be kept open for patients applying from this and other States during the whole year, the only restriction being that no contagious diseases are admitted.

The expense to patients will be only for their board and for unusual appliance the, services of the Faculty being rendered gratuitously.

Under the present arrangement, and with ample opportunity for Homœopathic treatment patients will be much better accommodated, and clinical instruction is rendered more systematic and efficient than has hitherto been possible.

## VII. FEES AND EXPENSES.

The fees,\* which must be paid in advance, are as follows:

**MATRICULATION FEE.**—Residents of Michigan, \$10; non-residents, \$25.

**ANNUAL DUES.**—Residents of Michigan, \$20; non-residents, \$25.

**GRADUATION FEE.**—For all alike, \$10.

Graduates of any respectable college are admitted to all the privileges of the matriculate, *save that of obtaining a degree*, on the payment of the annual dues, as residents or non-residents. Such students after passing examination, may receive a special certificate, signed by the President of the University, for each study pursued.

The *admission fee is paid but once*, and entitles the student to the privileges of permanent membership in any Department of the University. The annual fee is paid the first year, and every year thereafter.

There are neither dormitories nor commons connected with the University. Students obtain board and lodging in private families for from three to five dollars per week. Clubs are also formed in which the cost of good board is from one dollar and a half to two dollars and a half per week. Room rent varies from seventy-five cents to two dollars per week for each student.

It is proper to say, in answer to numerous inquiries, that the University does not undertake to furnish manual labor to students; yet a considerable number of students find in the city opportunities for remunerative employment.

It is also proper to state that, in no seat of a prominent institution of learning in this country, are the necessary expenses of living and procuring supplies of every kind less than at Ann Arbor. Books, instruments, and all other appliances for the work of students are kept constantly on hand, and are afforded at as low prices as elsewhere.

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\* No portion of the fees can be refunded to students who leave the University during the academic year, except by order of the Board of Regents.

## VIII. TEXT AND REFERENCE BOOKS.

Any of the following text-books in each department will answer the necessities of the student; and wherever a preference exists, it is given to those first in order on the list.

ANATOMY.—Gray, Wilson, Leidy, Peaslee, Stricker.

PHYSIOLOGY.—Küss, Kirke, Dalton, Marshall. *For Reference*.—Flint, Carpenter, Todd and Bowman, Sanderson's Handbook for the Physiological Laboratory.

CHEMISTRY.—*In General Chemistry*.—Miller's Chemical Physics, Miller's Inorganic Chemistry, or Eliot and Storer's Manual of Chemistry. *For Laboratory*.—Douglas and Prescott's Analysis, Vaughan's Physiological Chemistry, Wormley on Poisons.

PATHOLOGY AND PATHOLOGICAL ANATOMY.—Wagner, Green, Rindfleisch, Billroth, Paget, Williams's Principles. *For Reference*—Rokitansky and Virchow.

MATERIA MEDICA AND THERAPEUTICS.—*Dunham, Lilienthal's Therapeutics*. Hughes's Pharmacodynamics; Herring's condensed Materia Medica; Hull's Jahr; New Remedies, 2d edition; Hahnemann's Organon, Materia Medica Pura, and Chronic Diseases; Cowperthwaite, Allen's Encyclopedia; Hartmann's Homœopathic Remedies. *For Reference*—H. C. Wood, Bartholow, Stillé, Phillips, Ringer; Christison, or Taylor on Poisons.

N. B.—Phillips and Ringer are especially recommended to such practitioners and graduates as contemplate studying Homœopathy.

EXPERIMENTAL PATHOGENESY. *Hahnemann's Organon*, Wesselhœft's Translation, Brunton's Investigation of the Action of Medicines, Part I. Ott's Action of Medicines. *Handbook for the Physiological Laboratory*, edited by J. Burdon-Sanderson, Manual of Chemical Physiology. *Thudicum*.

OBSTETRICS.—*Guernsey, Richardson, Leadam, Playfair, Meadows, Marsden, Byford, Schröder, Cazeaux, Hodge. Special Subjects*—Tanner on Pregnancy, Barnes on Obstetric Operations, Elliott's Obstetric Clinic, Barker on the Puerperal Diseases.

DISEASES OF WOMEN.—*Ludlam, Jahr, Thomas, Byford, Hewitt West, Barnes, Hodge. Special Subjects*.—Klob on Pathological Anatomy of the Female Sexual Organs; Peaselee on Ovariectomy; Sims on Uterine Surgery; Emmet on Vesico-Vaginal Fistula.

DISEASES OF CHILDREN.—*Hartmann, Duncan, Tanner, Meigs, Pepper, Hillier. Special Subjects*.—Eustace Smith on the Wasting Diseases of Infancy and Childhood; Combe on the Management of Infancy;

Routh on Infant Feeding; Holmes or Guersant on the Surgical Diseases of Children.

THEORY AND PRACTICE.—*Raue, Baehr, Ruddock; Hughes's Manual of Therapeutics; Homœopathic Therapeutics, by S. Lilienthal; Niemeyer; Roberts; Aitkin; edited by Clymer. For Reference.—Reynold's; Ziemssen's Cyclopædia.*

SURGERY.—*Franklin, Helmuth, Gilchrist, Erichsen, Hamilton, Druitt. Special Subjects—Franklin on Spinal Diseases, etc., Hamilton on Fractures and Dislocations; Bumstead on Venereal Diseases; Sayre on Club Foot; Sir Henry Thompson on the Genito-Urinary Diseases and Surgery; F. N. Otis on Stricture of the Male Urethra. In Minor Surgery and Surgical Appliances.—Wales, Sargent, C. Henri Leonard on Bandaging. For Reference—Gross's System of Surgery; Holmes's System of Surgery.*

OPHTHALMOLOGY AND OTOTOLOGY.—*On the Eye—Angell, Allen and Norton, Hart, Sælberg Wells, Stellwag, Carter, Metz. On the Ear—Roosa or Toynbee with Hinton's Supplement.*

PHYSIOLOGICAL CHEMISTRY.—*Brunton, (Handbook for the Physiological Laboratory), Thudicum (Manual of Chemical Physiology). For Reference—Lehmann's Physiological Chemistry.*

ELECTRO-THERAPEUTICS AND ELECTRO-SURGERY.—*John Butler, M. D.*

The student who is commanding a course of reading without an instructor, is recommended to devote the most of his time for the first year to the elementary branches, Anatomy, Physiology and Chemistry, both general and medical; then advancing to the other studies to select one of the first mentioned text-books in each department, passing to the "*special subjects*" only when near the completion of the course, or as he may desire for particular reasons to become more fully informed on such subjects.

## IX. SPECIAL NOTICE.

In answer to many inquiries, it is thought desirable to state more explicitly, that no previous study of Medicine is required for admission to the College. Any person of proper age and character, and having the requisite elementary English education is permitted to enter.

## X. ASSIGNMENT OF SEATS.

Students on arriving in Ann Arbor can obtain the necessary information in regard to rooms, board, etc., by calling at the Steward's office. Seats in the Lecture rooms are assigned by selection to students in the order of registration on the Treasurer's books, and according to the class they are to enter; and each student is expected to occupy during the session such seat as may be assigned to him. In the clinical lectures the graduating class, by courtesy, are allowed the privilege of the seats nearest the operating table and lecture desk.

Letters of inquiry may be addressed to the "Dean of the Homœopathic Medical College," Ann Arbor, Michigan.

# College of Dental Surgery.

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## I. ANNOUNCEMENT.

The fifth annual course of instruction in this College will commence on Friday, October 1, 1880, and continue till the last Wednesday of March, 1881. There will be a recess of about two weeks during the holidays.

The term of instruction in the Medical Department is nine months. The students of the Dental College, therefore, have an opportunity to pursue their studies till the last of June, and it is especially urged and expected that during this time the work in the Chemical and Physiological Laboratories will be taken up and completed.

There are from five to six lectures daily during the regular course; examinations are made upon the subjects presented.

The Dental students are required to attend all the lectures in the Medical College, except as hereinafter provided.

Seats are assigned in the order of matriculation, and the regular course of instruction begins promptly at the opening of the term. It is for the interest of all and especially of the students that they be in attendance at that time. Still they may enter at any time during the session, but two full courses will be required, in addition to such fractional attendance, for graduation.

## II. QUALIFICATIONS FOR ADMISSION.

Every candidate for admission must be eighteen years of age; and is required to present to the Faculty satisfactory evidence of a good moral character. Unless already a matriculate of the University, or a graduate of some respectable college, academy or high school, every candidate shall be examined



as to his previous education, and fitness for entering upon and appreciating the technical study of Medicine. The diploma or certificate of graduation from such institution must be presented to the Dean of the Faculty by the candidate in order to secure exemption from the examination, which will be in writing, and will embrace the ordinary branches of an English education.

Examinations will be held on Wednesday and Thursday, September 29 and 30, 1880. Candidates are required to be present on the morning of the 29th or the 30th, as they are expected to be in attendance on the first day of the term, at which time the regular course of instruction will commence. To provide for cases in which it is absolutely impossible for candidates to be present at this time, supplementary examinations will be held at such times as may be determined by the Faculty. Certificates of attendance are given for the actual period of attendance only.

Before admission to examination every student is required to present to the Dean of the Faculty the Treasurer's receipt for the payment of the matriculation fees and annual dues. It will therefore be necessary for the candidate to apply first to the Steward at his office in University Hall, register his name as a student in the Dental College, and pay his fees to the Treasurer. In case of rejection, the money paid preliminary to examination will be refunded by the Treasurer.

### III. THE ADVANTAGES OF CONNECTION WITH THE UNIVERSITY.

The Department of Medicine and Surgery, long in successful operation, offers in full the facilities required for the satisfactory study of all branches common to General Medicine and this Specialty. These facilities may be concisely enumerated as follows:

#### CHEMISTRY.

Recognizing the important part chemical agents and processes play in the laboratory and operating room of the dentist and the marked influence they have in diseases of the teeth

and associate parts, the students are required to attend the lectures on inorganic and organic chemistry, besides which they have the advantages of the Chemical Laboratory, for the practical study of all those agents or secretions that concern their future needs in the prevention and cure of disease.

This Laboratory is devoted exclusively to chemistry, and is furnished with all needed apparatus for any kind of research that may be required. A course in analysis of saliva is required, and analysis of urine is made optional to the student.

### MATERIA MEDICA AND THERAPEUTICS.

Under this head will be brought in review all the remedial agents the dentist will need to use, with the fundamental principles which will guide their application in practice. The instruction in this branch will consist of the lectures in the Medical College, supplemented by a special course of about twenty lectures on the particular therapeutic agents used in Dental practice. This course will be given in the Dental College.

### ANATOMY.

The groundwork of our science, the importance of which to the dental student cannot be over estimated, will be studied demonstratively and practically. Besides the full course on general anatomy, which the student will attend with the medical class, special instruction will be given in the anatomy and histology of all that appertains to the oral apparatus. Thereby the dental student can become thoroughly acquainted with the region of his future professional practice, and in this he must actively participate to make his knowledge of these parts complete.

### PHYSIOLOGY AND HISTOLOGY.

These subjects are fully considered and illustrated in their various aspects.

The importance of histological knowledge for the full comprehension of physiology is so fully recognized as to render necessary the establishment of a Laboratory which is now equipped with twenty superior microscopes and all accessory

apparatus and appliances required for the thorough prosecution of the work.

The principal structures and tissues of the animal body are studied here in detail and special attention is given to their pathology, including the minute study of the new formations.

A course in this Laboratory not only gives the student a knowledge of animal structures and tissues, but makes him familiar with the workings and uses of the microscope.

All candidates for graduation are required to take this course.

### PATHOLOGY AND PRACTICE.

The instruction in Pathology and Practice of Medicine, always thorough and exhaustive in regular medical lectures, will furnish ample means for becoming acquainted not only with the principles but with the details of practice. In addition to this there will be given a special course in the Dental College on Oral Pathology, which will embrace all of the diseases common to the mouth and the contiguous parts; also the influence of disease in other parts upon these.

### SURGERY.

A complete course in this branch both didactic and clinical, will fully meet the dentist's needs in the discussion and presentation of the surgical diseases, as well as the great underlying principles of surgical practice wherever applied. A course in Oral Surgery will also be given in the Dental College.

### DISEASES OF WOMEN AND CHILDREN.

Knowing how seriously the conditions of maternity and the provisions therefor often disturb the system, the dental student will be profited by instruction given in the obstetrical and allied lectures.

The diseases of children, also, as affecting dentition, and as being affected by it, should receive special attention by the dental student. A special course on these subjects will also be given in the Dental College.

In short, the advantages which are offered by a fully equipped medical college are of the first importance to the student of dental science, and attendance upon at least one entire course of medical lectures may properly be regarded as the true foundation for the subsequent study of a speciality.

#### IV. PRINCIPLES AND PRACTICE OF OPERATIVE DENTISTRY.

In this department will be presented the principles involved in the treatment of and operations upon the natural teeth and adjacent parts, for their preservation and restoration to health when diseased. This will embrace not only attention to the various affections of the teeth and contiguous parts, but the character and application of the special remedial agents, and the various approved methods of operating in all the details of condition, materials, instruments and appliances.

The student will be required to make his attainments thorough in all these particulars, in order that he may not be at a loss for a guide in his treatment and manipulation.

#### V. CLINICAL.

In this department is given the most thorough practical instruction in the operative details, and in the preparation of the instruments and appliances used.

The rooms are ample and well arranged, and fully supplied with all the requisite facilities, such as chairs, engines, etc. All valuable appliances will be made available, and instruction in their use given.

Every member of the Senior class, at least, will be required to spend a part of each day so far as possible in the clinic room.

The opportunity and facilities for clinical instruction and experience are all that could be desired. Application for treatment and operations have been far in excess of the requirements of the class. A very important consideration in this matter is, that nearly all of those applying for service are persons who appreciate the value of their teeth, and have been

accustomed to receive the attention of skillful operators; in this fact is found a very desirable stimulus to the student.

## VI. PROSTHETIC DENTISTRY.

The instruction in this department will embrace everything that will enable the dentist to meet successfully the requirements in supplying substitutes for lost dental organs.

Special reference will be had to the principles involved in the restoration of the natural functions of the teeth, viz.: mastication, enunciation and expression of features, keeping in view always, the health and future usefulness of the living parts. Only practical and valuable modes will be taught, and no time will be wasted upon worthless and obsolete styles.

Those who have Laboratory tools and appliances should bring them; those who have not, are advised to defer purchasing till they arrive at the college, as they will then have the aid of the teachers in making proper selections. Ample supplies will be at hand.

Each student will be required to procure and carefully keep the tools and appliances necessary for his own use, a list of which will be furnished him at the time.

Particular attention will be given to the manipulation and management of the precious metals with reference to their use for dental purposes.

## VII. COURSE OF STUDY.

In the arrangement of the course of study it is the aim to make it such as will meet the requirements of the students and the expectation of the dental profession, and secure the greatest benefit to the public.

It is generally conceded that graded and progressive work promises the best results in education.

The curriculum prepared for this course embraces a range of subjects, the mastery of which cannot, without great difficulty, and at least some superficial work, be accomplished in less than three terms of six months each; therefore, to meet the necessity involved, the following schedule of subjects, em-

bracing a three years' course, is presented and strongly recommended:

FIRST YEAR.—Anatomy, Physiology, Dissections, General Chemistry, Prosthetic Dentistry, Physiological Laboratory,—*Histology*.

SECOND YEAR.—Review of First Year Studies, Anatomy, Physiology, General Chemistry, Practical Dentistry, Prosthetic Dentistry, Clinical Dentistry, Theory and Practice of Dentistry, Pathology, *Materia Medica*, Analytical Chemistry.

THIRD YEAR.—Theory and Practice of Dentistry, Clinical Dentistry, Pathology, Therapeutics, Special Surgery, *Oral*; Diseases of Women and Children.

At the middle of the second year the student may be admitted to an examination on Anatomy, Physiology, General Chemistry and Prosthetic Dentistry. This, if satisfactory, will be regarded as final. Prior to this he must make two or more satisfactory practical dentures, and also at this time present for deposit a denture that shall be acceptable to the Faculty. At the end of the second year, in addition to the above, an examination shall be had upon the principles of Pathology, *Materia Medica*, Histology and Analytical Chemistry. During, and at the end of the third year, examination will be had upon the remaining branches of the course, and an exhibition of such tests of skill and ability as the Faculty may ask will be required.

For those who may find it necessary to complete their course in two terms, the following schedule of studies has been prepared:

FIRST YEAR.—Anatomy, Physiology, Dissections, *during Holidays*; General Chemistry, Analytical Chemistry, *at the end of the regular course*; Theory and Practice of Dentistry, Prosthetic Dentistry, Principles of Surgery, *Materia Medica*, Physiological Laboratory, *Histology*, *at the end of the regular course*.

SECOND YEAR.—Anatomy, Physiology, Pathology, Theory and Practice of Dentistry, Clinical Dentistry, Special Surgery, *Oral*; Therapeutics, Diseases of Women and Children.

At the end of the first year there will be an examination, preliminary, to entering the second course, upon Anatomy, Physiology and General Chemistry, and a final examination upon Analytical Chemistry, Prosthetic Dentistry and Histology.

At the middle of the second year a final examination will be had on Anatomy, Physiology, General Chemistry and Materia Medica; and upon the remaining subjects of the course at the end of the term.

### VIII. AIDS TO INSTRUCTION.

Valuable additions have recently been made of imported preparations, illustrating Anatomy, Physiology, Pathology and Histology, including a series illustrating dentition from infancy to the completion of the process in the adult, and the normal changes through life to old age, and also illustrative of the dental and osseous tissues. Preparations, natural and artificial, greatly facilitate the study of the nervous and vascular systems as well. The design is to make every practicable appliance in this direction available.

It is proper to state that, in addition to the above, the Museum of the Medical College, so well supplied with all things necessary for the medical student, is rich in material to aid the dentist. The museum is constantly used in illustrating lectures and is always open to students. The University Museum also contains more than 250,000 scientific specimens, and is accessible to all who desire its advantages.

The University Library is open daily, offering its advantages with more than 2,000 volumes of medical literature to all who desire to use it, and a library of dental science, containing almost every known work on this speciality, is accessible to the students. Those who can command the time may also avail themselves of numerous lectures, or pursue elective studies, limited only by their capacity of appropriating what is abundantly offered.

### IX. GRADUATION.

The candidate for graduation must be twenty-one years of age. He must furnish evidence of good moral character. He must have devoted three years to the study of his profession, and have made such attainments in all the branches of the course of study herein indicated as shall be satisfactory to the Faculty. He must attend two full courses of lectures in this

Dental College, and we recommend that he attend these consecutively. However, one course in any other Dental College having an equal or similar standard of requirements to this, will be accepted as an equivalent to one course here. But all applicants offering such an equivalent shall submit to a preliminary examination at the option of the Faculty. A graduate of the Department of Medicine and Surgery may enter the Dental College, and if found qualified, may graduate after one year has been devoted exclusively to the study of Dentistry. He must submit to the Faculty a thesis upon some subject of his course, or upon some practical case which he shall have brought to a successful termination by his own effort. He must present for inspection practical operations prepared by himself in the College, and give evidence of his skill and ability in treating those derangements which may be submitted to his care. He must sustain an examination satisfactory to the Faculty in all the branches taught.

## X. TEXT-BOOKS.

ANATOMY—Gray.

PHYSIOLOGY—Dalton.

HISTOLOGY—Frey, Beale.

PATHOLOGY—Wagner.

DENTAL PATHOLOGY—Wedl.

ORAL SURGERY—Garretson.

OPERATIVE DENTISTRY—Taft.

PROSTHETIC DENTISTRY—Richardson.

CHEMISTRY—Miller.

THERAPEUTICS—Biddle.

MEDICAL DICTIONARY—Dungleson.

DENTAL DICTIONARY—Harris.

## XI. FEES AND EXPENSES.

The fees, which must be paid in advance, are as follows:

RESIDENTS OF MICHIGAN.—Matriculation fee, \$10; annual dues, \$20.

NON-RESIDENTS.—Matriculation, \$25; annual dues, \$25.

GRADUATION FEE.—For all alike, \$10.

The admission fee is paid but once, and entitles the student to the privileges of permanent membership in any department of the University. The annual fee is paid the first year, and every year thereafter only while in attendance at the University.



A CATALOGUE  
OF  
FACULTIES AND STUDENTS  
OF THE  
UNIVERSITY, 1879-80;  
PRECEDED BY  
A LIST OF THE GRADUATES OF 1879.



# DEGREES CONFERRED.

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## PHARMACEUTICAL CHEMIST.

Ira Austin Armstrong,	Philip Stanhope Houghton,
James Nelson Ayres,	Paul Christen Jensen,
Royal Frank Bowen,	John Perry Kelley,
Willis G. Campbell, Ph. B.,	Robert Fulton Mull,
William Dennis Church,	Louis Philip Orth,
William Warren Cole,	Daniel Edward Osborne,
Charles Whatefield Coons,	Arthur Sheldon Parker,
Byron Francis Dawson,	Arthur Hubert Vandivert,
John McCoy Eaton,	Allen Levi Walker,
William E. Finley,	Albert Christopher Wehrli, Ph. C.,
Channing Thomas Gage,	Frederick Lynn Wilson,
Edwin Peffers Hawley,	Lewis Newton Wood.

## MINING ENGINEER.

H. Throop Morley,	E. Fred Wood.
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John Charles Quintus,

## CIVIL ENGINEER.

Charles Spencer Beadle,	Irving Kane Pond,
Charles Carroll Brown,	Henry Goslee Prout,
Charles Sumner Henning,	(To be ranked in class of 1871.)
Brayton Daniel King,	Orlando B. Wheeler, M. A., M. S.,

## BACHELOR OF SCIENCE.

Richard Turner Chandlee,	James Wilfred McKinley,
Lorenzo John Locy,	Charlotte Maria Smith.

## BACHELOR OF PHILOSOPHY.

William Livingstone Axford,	Thomas Randolph Edwards,
Erastus Albert Barnes,	Marion Sarah Gerls,
Fred Somers Bell,	Maya Violet Lee,
Michael Henry Brennan,	Mark Norris,
James Padelford Brown,	Charles Gilbert Van Wert.
Oren Dunham,	

## BACHELOR OF ARTS.

Henry Winfield Ashley,	James David Callahan,
Maria Lavinia Blood,	Carina B. Campbell,
Hubert William Brown,	John Chase,
William Foster Bryan,	Edmund Adolph Christian,

Frantz Hunt Coe,  
 Chauncey Ferris Cook,  
 Richard Gay de Puy,  
 Laura Donnan,  
 Fanny Clinton Farrand,  
 Charles Howard Greathouse,  
 William Albert Greeson,  
 Leroy Halsey,  
 Frank Dwight Haskell,  
 George Hempel,  
 William Cary Hill,  
 Edward Walter Jenney,  
 Fred Parker Jordan,  
 Frank Day Mead,

Newton McMillan,  
 Jesse Fonda Millspaugh,  
 Albert Samuel Pettit,  
 James Elijah Pilcher,  
 Cyrus Augustus Pomeroy,  
 John Ross Russell,  
 Spencer Ramsey Smith,  
 Kenneth Russell Smoot,  
 John Hubbard Tweedy, Jr.,  
 Lucius Lincoln Van Slyke,  
 Elmer Randolph Webster,  
 Enoch Clark White,  
 George Deming Wright.

#### MASTER OF ARTS.

Edward Playfair Anderson,	Anson Peter De Wolf, B. A.,
Hubert William Brown,	William Albert Greeson,
Benjamin Chapman Burt, B. A.,	Leroy Halsey,
William Henry Butts, B. A.,	Jerry Whipple Jenks, B. A.

#### MASTER OF SCIENCE.

Barclay Tennyson Trueblood, B. S.,

#### MASTER OF PHILOSOPHY.

Frederick William Nichols, B. S.

#### DOCTOR OF PHILOSOPHY.

William Taylor Jackson, B. D.

#### DOCTOR OF MEDICINE [DEPARTMENT OF MEDICINE AND SURGERY.]

George Preston Allen,	Henry Jacob Cordier,
Charlotte Allen,	William R. Cullen,
Mary Ann Armstrong,	John T. Davis,
Edgar John Ashmore,	Helen E. Deane,
Herman Augustus Bailey,	Lyman Carroll Dexter,
Francis L. Bardeen,	Charles Fremont Dight,
Joseph Allen Bean,	Charles Isaac Eberle,
James Marshall Bell,	Matthew Henry Ellis,
Charles F. Bennett,	Benjamin Logan Euans, M. S.,
Francis Eugene Bortree,	Lewis Alfred Flexer,
Mary Lavinia Briggs,	Edward Lawton Fosdick,
John Campbell,	Frank Albert Foster,
Lafayette Ziba Coman,	Samuel Degraw Frederick,
Henry Ellis Combacker,	Louis C. Fuller, P. C.,
Elizabeth J. Corbett,	Pierce J. Fullerton,

Daniel Geib,	Albert Rose Nicholson,
Wilbur Gillett,	James Patterson Orr,
Charles D. Goodrich,	Byron Heston Ovenshire,
Cepha C. Hall,	Henry Clay Paddock,
Ernest Elbert Hamilton,	James Hugh Paston,
George Anstin Harding,	Louis Michael Plessner,
George William Harris,	Lanson Henry Recker,
Charles Everett Hebard,	Thomas Jefferson Ritter,
Albert Benjamin Herrick,	Frank H. Rorick,
Calvin Toy Hilliker,	Orville Lemon Rowe,
Willard Holt,	William Edgar Rowe,
James Porter Howard,	Mary Adeline Sanford,
Frank Johnson Hubbard, P. C.,	Ellen Amelia Sherman, B. A.,
John Jones Hudson,	Henry Albert Shurtleff,
Luther Holmes Hulburd,	Mary Slade,
Edgar S. Johnson, C. E.,	William Henry Smith, Ph. D.,
Joshua Jones,	Ralph Tenney Sowdon,
Douglas Arad Joy, M. E.,	Alice Martha Stark,
Patrick Henry Kiefe,	Anna Hall Stewart,
Michael William Kelly,	George Washington Stockton,
William Henry Keyes,	Melvin Watson Taylor,
George William King,	Thomas Elwood Taylor, B. A.,
Emett Haines Kirk,	Franklin Clark Terrill,
Reynold Jerome Kirkland,	Archibald J. Thomson,
E. Wirt Lamoreaux,	Jennie M. Turner,
Edward Miller Lindley,	William M. D. Van Velsor,
Mina Logue,	Carl Von Ruck, B. S.,
Ora Manly,	Willis Leaman Walkley,
Albert G. P. Manting,	Dallas Warren,
Hiram M. Martin,	Eber Kinney Watts, B. S.,
Julius C. McCormick,	Emma Francis Wells,
Thomas Hays McDonald,	Bion Whelan, B. S.,
Alexander McLeod,	Thomas Herman Wilcox,
James Curtis Miller,	Antoinette Williams,
Sidney Mitchell, Jr.,	W. A. S. Williams,
George A. Munshaw,	Franklin William Wilson,
Virginia C. Murdock,	Arthur Leland Worden.

## BACHELOR OF LAW.

William Lucus Aaron, Att'y,	Frank Davis Andrus, M. A., Att'y,
William Henry Adams,	Frederick Charles Arbenz,
Ethan Belden Allen,	Edwin Herod Ashley, Att'y,
Joseph N. Amor, Att'y,	William Andrew Ault,

Henry Edgar Baker,	Carl Edwin Epler, M. A.,
Gustave Charles Bartels,	Free Estee,
Theodore Melzo Bates,	John Vigers Eustace, Jr.,
James William Bedel,	Willis Wirt Fay,
Edwin Howard Bentley,	Oscar John Fiebing,
Thomas Benton Blackwell,	Henry Clay Finch, Att'y,
Millard Fillmore Blaine,	Solomon Thompson Finch,
George Matthew Blake, M. D.,	John Eugene Fishburne,
Frank Eugene Bliss, C. E.,	Frank M. Ford, Att'y,
James Herbert Blood,	Charles Gaylord Fowler,
Eugene Bodel,	John Hiram Fox,
Charles Elliott Boston, B. A., Att'y,	Willis W. O. Frantz,
William Logan Brackenridge,	Justus Liebig Gable,
William Henri Brown, Att'y,	John Parker Gale,
Orville Sanford Brumbach, B. A.,	William Donald Gordon,
Joseph Cornelius Burk,	Hamer Herschel Green,
Walter Perry Butler,	John Wesley Gregory, Att'y,
Judson Eugene Calendar,	George Grimm,
Charles Edwin Carpenter,	Edward Holmes Guyer, B. A.,
Warren Carpenter, Jr.,	Elmer Jay Hale,
John Smeeton Carter,	William Tileston Hall,
William Paulding Caruthers,	Henry Clay Hanna, Jr.,
Livy Chamberlin,	Edward Florence Hays,
Clarence Eugene Chapman,	William Franklin Hays, Att'y,
Charles Chandler, M. A.,	George Haywood, Jr.,
Alphons Richard Claxton,	Willis Gaylord Hemenway, Att'y,
Charles Simcon Cobb, B. S.,	Charles Roswell Henry,
John D. Coleman, Att'y,	Cass E. Herrington, Att'y,
Charles F. Collier,	David Morgan Hertzog, Att'y,
Homer Hodge Colvin, Att'y,	Eugene Herrick Hickernell, Att'y,
Reuben Donaldson Coy,	Arthur Sterrett Higgins,
William J. Crawford,	William E. Higgins, M. A.,
William Holman Crow, B. S.,	Hugh Matthew Hinds,
William Isaac Cummings,	Shannon Buntin Hubbard,
Thomas Daniel Danner,	Martin M. Hugg,
George Asa Dickey, Att'y,	Benjamin F. Hutchins,
Thomas Albert Dickson,	Daniel Carpenter Hyde,
James Frederick Drake,	Arthur Hancock Ingraham, B. A.,
Jude Emmet Dunlap,	Sylvester Benjamin Isenhardt,
Frank A. Durban,	Clarence Lindley Jacobs, Att'y,
John Columbus Elder,	Albert Price Johnson, B. A., Att'y,
Joseph Lillord Elioston,	Asa Giles Judd,
Edward George Embler,	John Perry Kellas,

Edward C. Kelly,	Henry Fillmore Rizer,
John Justus Kerr,	James Thompson Robison,
Winfield Scott Kerr,	Alison Crestus Roe,
Joseph Morris Kinnaird, B. A.,	Claiborne Schuyler Rohrer, Att'y,
Dana Spalding Lander,	Charles Henry Rose,
Gustav Adolf Laubscher,	Cyrus Egbert Rosenkrans,
Charles David LaTourette, Att'y,	George Frederick Ross,
William Spencer Lee,	Albert Florian Rouse, Att'y,
Michael John Lehman,	Albert Conrad Runkel,
Henry Rudisel Lennard,	Henry Wayne Russell,
Elbridge Emerson Lewis,	Louis Charles Schwerdtfeger,
Robert Atwood Long,	John Granville Scouten, B. E.,
John Elias Magers,	John C. Sheridan,
Samuel Maher, Att'y,	Preston Fremont Simonds,
John Alexander Mansfield,	Thomas Shreve Boyce Slaughter,
John McDevitt,	Adolph Sloman,
Henry McGrew,	Clarence W. Smith,
William Barnard McGrorty,	Frederick Eustace Smith,
Frank T. McHenry,	Charles Elliott Solis,
Robert Bishop McKnight, Att'y,	George Washington Somerville,
Joseph Rogers McLaughlin, B. S.,	William Andrew Staley, Att'y,
Robert C. McNamara,	Edwin Forrest Steers,
Lee K. Mihills,	Edward Ives Stimson,
William Oscar Miller,	Elias Cephas Stone,
Charles J. Monroe,	James King Taylor,
Fritz Morris,	Otis David Thompson,
William Erven Myler, Att'y,	William Henry Townsend,
Henry Wirt Newkirk,	William Squire Turner,
Alphonso Cain Norton,	Edwin Smith Van Dausen,
Josiah J. Nunn,	George Allen Van Dyke,
Emil Nusbaumer,	Benjamin Franklin Wade,
William Harrison Ogborn,	Napoleon Wagner,
Lyman Adelbert Orr,	Bryant Walker, B. A., Att'y,
Charles Alvin Orth,	Henry Gibson Wanty,
Edwin Shelby Palmer, Att'y,	Isaac Benjamin English Ward,
Elmer Alton Palmer, Att'y,	Clarence Beshar Wardle, Att'y,
Lyman De Essa Palmer, Att'y,	Delos Nicholas Weaver,
Ralph Phelps, Jr.,	Lovell Hastings Webb,
Winslow Shelby Pierce, Jr.,	Melville Stone, B. S.,
Stephen Marion Reynolds, B. A.,	Charles Edgar Sutton, B. A., Att'y,
Thomas Barton Rhodes,	Walter Webster,
John Evan Richards, B. A.,	Otway C. Weesner,
John Alden Riner,	Henry Elward Weiskopf,

Dudley Morris Wells,	Thomas Jefferson Wolff,
Charles Alvah Widener,	Emery Thomas Wood,
David John Williams,	Will R. Wooden,
William Henry Williamson, B. S.,	Henry Madison Woodford, B. A.,
Louie Barney Winsor,	George William Wurzell,
William Seaburn Wise,	John Otto Zabel.
Charles A. Withey, Att'y,	

## DOCTOR OF MEDICINE [HOMŒOPATHIC MEDICAL COLLEGE.]

Alvin Byron Allyn,	Leonard Edwin Gallup,
Archibald Herbert Babcock,	Oscar Samuel Hartson,
John Coolidge,	Albert Lodge,
Elijah Nash Cooper,	Edward Augustus Lodge,
Jabez Percy Dake, Jr.,	Daniel A. McLachlan,
John H. DeMay,	Charles Osborne Padley,
John Wesley Dill,	Elise Jane Ray,
Mary Tanner Dill,	Eugene Clarence Story,
Anna E. P. Eastman,	Charles Morton Waelder,
James Henry Enloe,	Aaron Robert Wheeler,
Peter Erb,	Amos Hiram Winslow,
Lottie Elizabeth Fitzgerald,	James Craven Wood.
Phebe Ann French,	

## DOCTOR OF DENTAL SURGERY.

David M. Cattell,	Henry Bristol Orr,
William Henry Dorrance,	Howard Treat Sackett,
Frank Oscar Gilbert,	Samuel Bartlett Short,
Clark Lowell Gregory,	E. Frank Sites,
Herbert Frank Harvey,	Frank H. Waldron,
George Thomas Higgins,	Corydon La Ford Wall,
James Henry Kennicott,	Frank B. Wells.
Edwin Jacob Lilly,	

## HONORARY DEGREES.

## DOCTOR OF DENTAL SURGERY.

John W. Finch.

## MASTER OF ARTS.

William H. Barnum.

## DOCTOR OF LAW.

Marshall Davis Ewell, LL. B.,

Lewis Ransom Fiske, D. D.



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OF THE DEPARTMENT OF

## Literature, Science and The Arts.

JAMES B. ANGELL, LL. D.,

PRESIDENT.

REV. GEORGE P. WILLIAMS, LL. D.,

HENRY S. FRIEZE, LL. D.,

DEAN OF THE FACULTY.

EDWARD OLNEY, LL. D.,

CHARLES K. ADAMS, LL. D.,

REV. BENJAMIN F. COCKER, D. D., LL. D.,

ALBERT B. PRESCOTT, M. D.,

REV. MARTIN L. D'OOGHE, PH. D.,

GEORGE S. MORRIS, M. A.,

CHARLES E. GREENE, M. A., C. E.,

MOSES COIT TYLER, LL. D.,

WILLIAM H. PETTEE, M. A.,

JOHN W. LANGLEY, S. B., M. D.,

W. L. B. JENNEY, C. E.,

MARK W. HARRINGTON, M. A.,

JOSEPH B. STEERE, PH. D.,

EDWARD L. WALTER, PH. D.,

ALEXANDER WINCHELL, LL. D.,

WILLIAM H. PAYNE, M. A.,

CHARLES K. WEAD, M. A.,

ALBERT H. PATTENGILL, M. A.,

JOSEPH B. DAVIS, C. E.,

WOOSTER W. BEMAN, M. A.,

ISAAC N. DEMMON, M. A.,

CHARLES N. JONES, B. A.,

PRESTON B. ROSE, M. D.,

ELISHA JONES, M. A.,

REV. RICHARD HUDSON, M. A.,

VOLNEY M. SPALDING, M. A.,

P. R. B. DePONT, B. A., B. S.,

CHARLES S. DENISON, C. E., M. S.,

ALFRED HENNEQUIN, M. A.,

CALVIN THOMAS, M. A.,

OTIS C. JOHNSON, M. A.,

LOUISA R. STOWELL, M. S.

BYRON W. CHEEVER, M. A., M. D.

# STUDENTS.

## RESIDENT GRADUATES.

NAME.	RESIDENCE.
Albert Erastus Barnes, Ph. B.,	<i>University of Michigan, Owosso.</i>
Joseph Irving Bates, B. A.,	<i>University of Toronto, Woodstock, Ont.</i>
W. Wadsworth Burt, B. A.,	<i>University of Michigan, Ann Arbor.</i>
Charles Howard Greathouse, B. A.,	<i>University of Michigan, Ann Arbor.</i>
Horace Holmes, C. E.,	<i>University of Michigan, Peru, Ill.</i>
George Washington Lilly, B. A.,	<i>Ohio Wesleyan Univ'y, London, O.</i>
Franc M. Martin, M. A.,	<i>Ia. Wesleyan University, Mt. Union, Ia.</i>
Jabez Montgomery, M. S.,	<i>University of Michigan, Ann Arbor.</i>
Joseph Wilson Parker, B. A.,	<i>Earlham College, Belvidere, N.C.</i>
Alfred Bennett Price, M. A.,	<i>University of Chicago, Cassopolis.</i>
Guilford L. Spencer, B. S.,	<i>Purdue University, Lafayette, Ind.</i>
Barclay Tennyson Trueblood, M. S.	<i>University of Michigan, Hadley, Mo.</i>
Frank A. Wadleigh, B. S.,	<i>Iowa State University, Clinton, Ia.</i>

## CANDIDATES FOR DEGREES.

NAME.	DEGREE.	COURSES.	RESIDENCE.
Edgar J. Adams,	B. L.	5 2-5	<i>Ionia.</i>
Hattie E. Ailes,	B. L. (L.)		<i>Ann Arbor.</i>
Horace Clement Alexander,	B. S.	4 4-5	<i>Sterling, Ill.</i>
Frank Gates Allen,	B. A.	13	<i>Aurora, Ill.</i>
Josiah Little Ambrose,	Ph. B.	18 1-5	<i>Chicago, Ill.</i>
Harry Stoddard Ames,	B. A.		<i>Flint.</i>
Mattie Elizabeth Arnold,	Ph. B.	17 2-5	<i>Detroit.</i>
Edward Austin,	B. S.		<i>Battle Creek.</i>

NOTE.—For descriptions of the requirements for the various degrees, see pp. 60-65. The figures set against a student's name indicate the number of Full Courses (taken prior to the beginning of the current academic year, 1879-80), which he has completed without conditions. By a Full Course is meant the equivalent of five exercises a week during a semester.

NAME.	DEGREE.	COURSES.	RESIDENCE.
Howard Ayers,	B. S.		Fort Smith, Ark.
John Ayers,	M. E.	20 1-5	Fort Smith, Ark.
Franklin Corydon Bailey,	B. S.	7	Ann Arbor.
Hattie May Bailey,	B. L.	6 1-5	Grand Rapids.
Sadie Bailey,	B. L. (L)		Fulton, Mo.
Julian William Baird,	B. A.	7 1-5	Jackson.
Frank Elisha Baker,	B. A.	6 4-5	Goshen, Ind.
Louise Jewett Ball,	B. A.		Ann Arbor.
Sarah Elizabeth Bangs,	B. A.	9 4-5	Ottawa, Ill.
Edmund Herbert Barmore,	R. S.	2 3-5	Jeffersonville, Ind.
Edward Arthur Barnes,	B. A.		Lansing.
Orlando Fleming Barnes,	B. A.	15 1-5	Lansing.
Marienne Bary,	B. A.		Detroit.
S. Willard Beakes,	B. A.	4 4-5	Bloomingsburg, N. Y.
Junius Emery Beal,	B. L. (L.)	7 3-5	Ann Arbor.
Samuel Floyd Beaumont,	M. E.	17	Peru, Ind.
Julia Randolph Bell,	B. A.		Ann Arbor.
Charles William Belser,	B. A.		Ann Arbor.
Emily Augusta Benn,	B. A.		East Saginaw.
Brayton Seeley Bennett,	B. A.	6	Salem.
John W. Bennett,	B. A.		Ann Arbor.
Edward McElroy Benson,	B. A.	6 2-5	Detroit.
Lillian Margaret Berkey,	B. A.	6 2-5	Grand Rapids.
Lafayette Seavey Berry,	B. L. (L.)		Prairieville, Ill.
Fred Betts,	B. A.	2 4-5	Hillsdale.
Guy Maynard Bigelow,	B. A.	13 3-5	Memphis, Tenn.
Charles Hoge Black,	B. A.		Detroit.
Jane Carr Bliss,	B. A.		Grand Rapids.
George Webster Borden,	B. A.	17 4-5	Ann Arbor.
Frank Pardee Boughton,	B. A.	13 3-5	Battle Creek.
Willis Boughton,	B. A.	10 3-5	Princeton, Ill.
Edward Henry Bowman,	B. A.	13	Saint Charles, Ill.
Arthur A. Boyer,	B. A.		Walla Walla, W. T.
Charles Taylor Brace,	B. A.	10 3-5	Leavenworth, Kan.
Henry Hall Bradley,	B. A.		Algansee.
William Clarence Braisted,	B. L. (L.)		Ann Arbor.
Merle Amos Breed,	B. A.	5 1-5	Ypsilanti.
William Henry Brenton,	B. S.		Petersburg, ind.
John Marion Brewer,	B. A.	18 4-5	Romeo.
Willard Irving Brigham,	B. A.		Grand Rapids.
Fred Ernest Britten,	B. A.		Ann Arbor.
Benjamin Pitcher Brodie,	B. A.	2 4-5	Detroit.

NAME.	DEGREE.	COURSES.	RESIDENCE.
Addison Makepeace Brown,	B. A.		<i>Schoolcraft.</i>
Austin Howard Brown, Jr.,	B. S.		<i>Indianapolis, Ind.</i>
Edward Miles Brown,	PH. B.	18 4-5	<i>Schoolcraft.</i>
Edwin Newton Brown,	B. A.	1 3-5	<i>Mason.</i>
George Alfred Brown,	C. E.	12 3-5	<i>Ann Arbor.</i>
Randolph Willis Brown,	C. E.	10 3-5	<i>Rochester, Minn.</i>
Walter Seymour Brown,	B. S.	5	<i>Ann Arbor.</i>
Claude Robinson Buchanan,	B. A.	12 1-5	<i>Grand Rapids.</i>
Edward Henry Bull,	B. L. (L.)	6 2-5	<i>Ottawa, Ill.</i>
Isaac Howard Bullock,*	B. A.	23 1-5	<i>Kelton, Penn.</i>
Ada Bunnell,	B. S.	5 4-5	<i>Bay City.</i>
Arthur William Burnett,	B. A.	21 4-5	<i>Detroit.</i>
Henry James Butler,	B. A.	8 1-5	<i>Lionville, Penn.</i>
William Byron Cady,	B. L. (L.)	6 4-5	<i>Ann Arbor.</i>
Charles Hotchkiss Campbell,	PH. B.	19	<i>Detroit.</i>
Douglas Houghton Campbell,	B. L. (L.)	6 4-5	<i>Detroit.</i>
George Noble Carman,	B. A.	14 1-5	<i>Ann Arbor.</i>
Charles Gilbert Chaddock,	B. L. (L.)		<i>Jonesville.</i>
Samuel Chandler,	B. A.	12 2-5	<i>Saint Joseph.</i>
Florence Charles,	B. L.		<i>Sioux City, Ia.</i>
Clarence Herbert Childs,	B. L. (L.)	8 4-5	<i>Fort Dodge, Ia.</i>
John Charles Chynoweth,	B. S.	5	<i>Greenland.</i>
William Matthew Clapp,	B. S.	3 4-5	<i>Detroit.</i>
Mary Elizabeth Clark,	B. L.	6	<i>Flint.</i>
Will George Clark,	B. S.		<i>Wattsburg, Penn.</i>
Thomas Cowgill Clayton,	B. A.		<i>Ann Arbor.</i>
Caroline Clements,	B. A.		<i>Ann Arbor.</i>
William Lawrence Clements,	B. S.	4 2-5	<i>Ann Arbor.</i>
Ellen L. Clothier,	B. L.	19 4-5	<i>Fredonia, N. Y.</i>
Charles Lewis Coffin,	B. S.	8 4-5	<i>Sandusky, O.</i>
Fred G. Coldren,	B. A.	6 4-5	<i>Northville.</i>
Edwin Locke Cole,	B. L.	6 1-5	<i>Ann Arbor.</i>
Festus Clark Cole,	PH. B.	12	<i>Ann Arbor.</i>
Sumner Collins,	B. A.	6	<i>Macon.</i>
Kate Ellis Coman,	PH. B.	20	<i>Hanover, O.</i>
John Josiah Comstock,	B. A.		<i>Colona, Ill.</i>
William Wilson Cook,	B. A.	16 2-5	<i>Hillsdale.</i>
Roger William Cooley,	B. L.	4 3-5	<i>Decorah, Ia.</i>
Ismena Cramer,	PH. B.	19	<i>Ann Arbor.</i>
Isaiah Reed Crossette,	B. A.	13	<i>Three Rivers.</i>

\* Deceased.

NAME.	DEGREE.	COURSES.	RESIDENCE.
Lewis Franklin Culver,	B. A.	18 1-5	Quincy.
Mittie May Curtis,	B. L. (L.)	5 2-5	Ann Arbor.
George Brown Daniels,	B. A.	12 4-5	Grand Rapids.
Eliza Darling,	PH. B.	13 1-5	Laporte, Ind.
Frederick William Davenport,	B. L. (L.)	7 2-5	Eureka, Ill.
Edward Sweat Davis,	C. E.	16 3-5	Waxahatchie, Texas.
Mary W. Dawson,	B. A.	5 1-5	Pontiac.
John Philander Delphey,	B. L. (L.)	6 3-5	Erie.
George Alonzo Derby,	B. S.		Jamestown, N. Y.
Benjamin Leonard D'Ooge,	B. A.	10 4-5	Grand Rapids.
John William Dorst,	C. E.	12 1-5	Detroit.
Benjamin Douglas,	B. S.	6	Detroit.
Charles Levi Dubnar,	B. A.	18 3-5	Northville.
Evered Curtis Dudley,	B. A.		Grand Rapids.
Bethune Duffield,	B. A.		Detroit.
James Czar Dunning,	B. L. (L.)		Paw Paw.
Charles Howard Durham,	B. A.	6 2-5	Ravenna, O.
Ellen Eastman,	B. L. (I.)	7	Flint.
Arthur Dunning Eddy,	B. L.		East Saginaw.
Malcolm Woodworth Edgar,	B. L. (L.)	7 4-5	Flushing.
Edmund West Eede,	B. S.		Kingsville, Ont.
Joseph Washington Errant,	B. A.		Chicago, Ill.
George M. Llewellyn Erwin,	B. A.		Southfield.
John Thomas Ewing,	B. A.	21	Ionia.
Jane Eyer,	B. A.	12 2-5	Chicago, Ill.
Edmund Elwood Fall,	B. A.		Walla Walla, W. T.
Katharine Eliza Farrand,	B. L. (L.)		Laporte, Ind.
William Edward Fenwick,	B. L. (L.)	9 3-5	Detroit.
George Lee Fisher,	C. E.	18	Pontiac.
Henry Allen Fitzsimmons,	B. A.	6	Reading.
William W. Follett,	B. S.	7 4-5	Newfane, N. Y.
Duane Edwin Fox,	B. A.	13 4-5	Grand Rapids.
Allan Howard Frazer,	PH. B.	13	Detroit.
Maurice Pixley French,	B. L. (L.)	5 3-5	Milwaukee, Wis.
Jay Fuller,	PH. B.	19 4-5	Buchanan.
James Frederic Gallaher,	B. A.	5 4-5	Hillsdale.
Margaret Grace Garvey,	B. L. (L.)		Springfield, Mass.
Walter Brown Garvin,	B. A.		Weston, Mo.
Don Alonzo Garwood,	B. A.	15 2-5	Cassopolis.
Anna Bordwell Gelston,	PH. B.	12 2-5	Ann Arbor.
Arthur Mills Gelston,	B. A.	7 1-5	Ann Arbor.
James Chester Gibbs,	B. A.		Kalamazoo.

NAME.	DEGREE.	COURSES.	RESIDENCE.
Frank Herbert Gilbert,	B. L. (L.)		Zanesville, O.
Marcia Gilmore,	B. L. (L.)	7	Denver, Col.
Fred Harris Goff,	PH. B.	14	Cleveland, O.
Charles Watson Goodrich,	B. A.	12 2-5	Milwaukee, Wis.
Mary Henrietta Graham,	PH. B.	19 2-5	Ann Arbor.
William Herbert Graham,	B. A.	6 4-5	Grand Rapids.
John Henry Grant,	B. A.	6 3-5	Burlington, Ind.
Henry Ballard Graves,	B. L. (L.)	5 3-5	Battle Creek.
Ralph Gray,	B. A.		Marysville.
Robert Toms Gray,	B. L. (L.)	6 4-5	Detroit.
John Alexander Green,	B. A.	19	Austin, Texas.
Thomas C. Greene,	PH. B.	21 4-5	Troy, N. Y.
Effie Griffith,	B. A.	5	Greenville.
Nat Gunter,	PH. B.	6	Sherman, Texas.
Frederick James Gurney,	B. A.	20 2-5	Chicago, Ill.
P. Bradshaw Haid,	B. A.		Ann Arbor.
Norman Washington Haire,	B. A.	19	Leslie.
Albert Barlow Hale,	B. A.	6 2-5	Chicago.
Arthur Gillespie Hall,	B. A.	14 2-5	Cazenovia, N. Y.
Ferdinand Hall,	B. S.	3 3 5	Westfield, N. Y.
Sarah G. Hamilton,	B. L. (L.)	6 3-5	Jacksonville, Ill.
Will Washington Hannan,	B. A.	19	Dowagiac.
Mary Lucy Harding,	B. L. (L.)	6 2-5	Detroit.
K. D. Harger,	B. S.		Pontiac.
Linda Enos Harris,	B. L.		Laporte, Ind.
James William Harsha,	B. A.		Circleville, O.
Elnathan Pierce Hathaway,	B. L.		Ottawa, Ill.
John Evangelus Hathaway,	B. S.	10 3-5	Milwaukee, Wis.
Henry William Hawley,	B. L. (L.)		Fort Dodge, Ia.
Thomas Lorenzo Heaton,	B. L.	20 4-5	Potsdam, N. Y.
Mary Hegeler,	B. S.	9 2-5	Lasalle, Ill.
William Helmle,	B. A.	19	Springfield, Ill.
Carrie D. Henderson,	B. A.		Pontiac.
Annie May Herdman,	B. L. (L.)		Zanesville, O.
James Byron Herrick,	B. A.	6	Oak Park, Ill.
William Simon Hill,	B. A.	12 2-5	Ann Arbor.
Laura Hills,	B. L. (L.)	6 2-5	Chicago, Ill.
E. Harold Hilton,	B. A.	10 2-5	Ann Arbor.
John Flavel Hinman,	B. A.	9	Battle Creek.
Norman Dwight Hinsdale,	B. A.		Ottawa, Ill.
Charles Wellman Hitchcock,	B. A.	22 1-5	Kalamazoo.
Edward Bailey Hitchcock,	B. S.	3 1-5	Ann Arbor.

NAME.	DEGREE.	COURSES.	RESIDENCE.
Frank Heywood Hodder,	B. L. (L.)		Aurora, Ill.
Herbert Augustus Hodge,	B. L.	13 1-5	Concord.
Charles H. Hodges,	B. S.	2 3-5	Detroit.
William Henry Honey,	B. A.	20	Ypsilanti.
David E. Hoover,	C. E.	12 3-5	Ionia.
Maurice Major Houseman,	PH. B.	14 4-5	Grand Rapids.
Abbie Eureka Howe,	B. A.	11 2-5	Ypsilanti.
James Edward Hunt,	B. A.	19	Toledo, O.
Mary Elizabeth Hunt,	B. L. (L.)		Ann Arbor.
Ormond Fremont Hunt,	B. A.	13 2-5	Ann Arbor.
Wetmore Hunt,	PH. B.	14	Detroit.
Ledru Rollin Hunter,	B. A.	18 2-5	South Lyon.
Charles Hutchinson,	PH. B.	14	Ceresco.
Louis Howard Hyde,	B. L. (L.)	5 1-5	Joliet, Ill.
Jesse Allen Icenhour,	B. L. (L.)	2 3-5	Columbiana, O.
Charles Edward Ilsley,	B. L. (L.)	6 2-5	Milwaukee, Wis.
Edward Israel,	B. A.	16 3-5	Kalamazoo.
Annie Delight Jackson,	B. L.		Wood River, Neb.
John Henry Jennings,	B. A.		Fenton.
Francis Joseph Jennison,	B. A.		Detroit.
Frank Arthur Johnson,	B. A.	17	Ann Arbor.
William Robert Johnson,	B. A.	7	Steubenville, O.
Collins Hickey Johnston,	B. A.	12 2-5	Detroit.
William Kemper Jones,	B. A.	20 3-5	Grand Rapids.
Alexander Edward Kastl,	B. S.		Detroit.
Willard Franklin Keeney,	B. A.		Grand Rapids.
John Kelly, Jr.,	B. A.	13 3-5	Detroit.
DeForest Kendall,	B. A.	1	Terre Haute, Ind.
Annie Marie Kimball,	B. A.	6 1-5	Grand Rapids.
Howard Hannibal Kimball,	B. S.	6 1-5	Columbus, O.
William C. King,	B. S.		Watrousville.
Homer Hitchcock Kingsley,	B. A.	13 3-5	Kalamazoo.
Charles Hannibal Kumler,	B. A.	12 2-5	Dayton, O.
James R. Laing,	B. S.	20 4-5	Ann Arbor.
George Anthony Lederle,	C. E.	8 3-5	Detroit.
Frank Bruce Leland,	B. A.	6 4-5	Byron.
Jeptha Elmer Lemon,	B. A.		Ann Arbor.
W. Leigh Liggett,	B. A.	13 1-5	Detroit.
Clarence Ashley Lightner,	B. A.	6 3-5	Detroit.
William Albert Locy,	B. S.	13 3-5	Flint.
Peter Burr Loomis, Jr.,	B. A.	18 1-5	Jackson.
William Leonard Loveland,	B. L.	5 1-5	Golden, Col.

NAME	DEGREE.	COURSES.	RESIDENCE.
Florence May Lyon,	B. L.		<i>Medina, N. Y.</i>
Edward Frederick Mack,	B. S.	3 1-5	<i>Ann Arbor.</i>
David Mackenzie,	B. A.	15	<i>Detroit.</i>
Henry Symes Mahon,	B. L. (L.)	5 4-5	<i>Ann Arbor.</i>
William L'Estrange Mahon,	B. L. (L.)	4 3-5	<i>Ann Arbor.</i>
Frank Chittenden Mandell,	B. A.	12 3-5	<i>Detroit.</i>
Henry Addison Mandell,	B. L. (L.)		<i>Detroit.</i>
Alma Mansfield,	B. A.	11 3-5	<i>Ann Arbor.</i>
William Elmore Martin,	B. L. (L.)	6 1-5	<i>Milwaukee, Wis.</i>
Willis Corydon Marsh,	B. L. (L.)		<i>Decorah, Ia.</i>
Elford Randolph McCormick,	B. L.		<i>East Saginaw.</i>
Flora McDonald,	B. A.		<i>Ann Arbor.</i>
William Hunter McEwan,	B. S.	6 3-5	<i>Bay City.</i>
Charles King McGee,	B. A.	18 4-5	<i>Jackson.</i>
Andrew C. McLaughlin,	B. A.	5 4-5	<i>Muskegon.</i>
John Alexander McLennan,	B. A.		<i>Lapeer.</i>
Charles McMurry,	B. A.	7 2-5	<i>Normal, Ill.</i>
Frank McNamara,	PH. B.	13 2-5	<i>Lapeer.</i>
William Clayton Miller,	C. E.	12 3-5	<i>Marquette.</i>
Charles Sumner Mitchell,	PH. B.	18 4-5	<i>Saint Cloud, Minn.</i>
William Hosmer Mitchell,	B. A.	6 4-5	<i>Port Huron.</i>
John Morris, Jr.,	B. A.		<i>Fort Wayne, Ind.</i>
Robert Graves Morrow,	B. L. (L.)		<i>Niles.</i>
Maggie Morton,	B. A.	12 1-5	<i>Ann Arbor.</i>
Henry Elmer Moseley,	B. A.		<i>Grand Rapids.</i>
John Joseph Alonzo Murphey,	B. A.		<i>La Grange, Ill.</i>
Harry M. Musgrave,	B. A.	6	<i>Charlotte.</i>
Eugene C. Nardin,	PH. B.	7 2-5	<i>Belle Branch.</i>
David Sealy Naugle,	B. A.	1	<i>Beaver Falls, Penn.</i>
Thomas Azro Noftzger,	B. L. (L.)		<i>North Manchester, Ind.</i>
James Hill Norton,	B. L.	7 4-5	<i>Brimfield, Mass.</i>
Leroy Stephen Norton,	PH. B.	17 3-5	<i>Ann Arbor.</i>
M. Estelle Norton,	B. A.	13	<i>Ann Arbor.</i>
Rollo Blakesly Oglesbee,	B. L. (L.)	3 3-5	<i>Plymouth, Ind.</i>
Harry Garnsey Ohls,	B. L. (L.)		<i>Hinsdale, Ill.</i>
William James Olcott,	B. L. (L.)		<i>Ishpeming.</i>
Amy Alice Orcutt,	B. S.		<i>Ann Arbor.</i>
Horace Mann Oren,	B. A.	11	<i>Miami, Ind.</i>
Frank Lincoln Osborn,	B. A.	6 4-5	<i>Tecumseh.</i>
Henry Putnam Page,	B. A.		<i>Ann Arbor.</i>
Edward Brooks Palmer,	B. S.		<i>Grand Blanc.</i>
Delos Leonard Parker,	PH. B.	9 1-5	<i>Marine City.</i>



NAME.	DEGREE.	COURSES.	RESIDENCE.
Carrie Cook Parrish,	B. A.	18 2-5	<i>Ann Arbor.</i>
Frederick Pynsent Partridge,	B. A.	7 4-5	<i>Flint.</i>
Isaac Newton Payne,	B. A.	6	<i>Port Clinton, O.</i>
John William Payne,	B. S.		<i>Port Clinton, O.</i>
Theodore Wing Peers,	B. L. (L.)		<i>Collinsville, Ill.</i>
Herbert Maury Pelham,	PH. B.	12	<i>Plymouth.</i>
Moss Kent Perkins,	B. A.	13	<i>Ann Arbor.</i>
Willard Fountain Pett,	B. A.		<i>Ann Arbor.</i>
Willis Edgar Phinney,	B. S.		<i>Coldwater.</i>
Samuel J. Platt,	B. A.		<i>East Saginaw.</i>
Allen Bartlit Pond,	B. A.	18 3-5	<i>Ann Arbor.</i>
Alden Howland Potter,	B. A.		<i>Ann Arbor.</i>
Albert Jay Potter,	B. A.	22 1-5	<i>Niles.</i>
Carrie Ellen Preston,	B. A.		<i>Detroit.</i>
Stella Prince,	B. A.	19 1-5	<i>Jacksonville, Ill.</i>
Reinhardt Rahr,	B. S.	3 2 5	<i>Manitowoc, Wis.</i>
Ida May Redson,	B. A.		<i>East Saginaw.</i>
Charles John Reed,	B. A.	6 3-5	<i>Morris, Ill.</i>
Frank Fremont Reed,	B. A.	18 1-5	<i>Ann Arbor.</i>
John Oren Reed,	B. L. (L.)		<i>Mount Summit, O.</i>
Jacob Elsworth Reighard,	B. L. (L.)	7 2-5	<i>Laporte, Ind.</i>
Rowland Henry Rerick,	B. S.	14	<i>La Grange, Ind.</i>
Henry Slade Richards,	PH. B.	19	<i>Paw Paw</i>
Harry Chase Richardson,	B. A.	10	<i>Princeton, Ill.</i>
James Albert Ridenour,	B. A.		<i>Toledo, O.</i>
Eugene V. Riker,	B. A.		<i>Fenton.</i>
William Douglas Robbins,	B. A.	6 4-5	<i>Tecumseh.</i>
Fred Austin Robinson,	B. A.	6 3-5	<i>Detroit.</i>
Edward Adolphus Rosenthal,	B. A.		<i>Fort Wayne, Ind.</i>
Frank Atherton Ross,	B. L. (L.)		<i>Terre Haute, Ind.</i>
Thornton William Sargent,	B. A.	3 1-5	<i>Piketon, O.</i>
Frank Peck Satterlee,	M. E.	19 3-5	<i>Birmingham.</i>
Louis Sax,	B. A.	14 4-5	<i>Milwaukee, Wis.</i>
Alfred Schanz,	B. A.		<i>Detroit.</i>
Stuart Niblo Schermerhorn,	B. A.	13 3-5	<i>Grand Rapids.</i>
William F. Schirmer,	B. A.		<i>East Saginaw.</i>
Samuel Balsom Schoyer,	B. A.	4 3-5	<i>Pittsburgh, Pa.</i>
John Giles Schurtz,	B. A.	13 4-5	<i>White Pigeon.</i>
Mabel Ethelwyn Schuyler,	B. A.		<i>Ann Arbor.</i>
Orielle Schuyler,	B. A.	10 3-5	<i>Ann Arbor.</i>
Wilfrid Hamilton Schuyler,	B. L. (L.)	6 3-5	<i>Ann Arbor.</i>
Job Hart Scott,	B. A.	12	<i>Brighton.</i>

NAME.	DEGREE.	COURSES.	RESIDENCE.
Osman Cooley Seelye,	B. A.	17 3-5	<i>Ann Arbor.</i>
Clarence William Sessions,	PH. B.	13 2-5	<i>Ionia.</i>
Levi Franklin Shaw,*	B. A.	2	<i>Cheboygan.</i>
Henry Gray Sherrard,	B. A.	7 1-5	<i>Tecumseh.</i>
Edwin Stanton Sherrill,	B. A.	18 4-5	<i>Detroit.</i>
Bowen Wisner Shoemaker,	B. A.	6 2-5	<i>Jackson.</i>
Carman Newcomb Smith,	B. L. (L.)		<i>Independence, Ia.</i>
Edwin Norton Smith,	B. A.		<i>Romeo.</i>
Joseph Warren Smith,	B. A.	22 3 5	<i>Eaton Rapids.</i>
George Perren Soyer,	B. L.		<i>East Saginaw.</i>
Hinton Ellsworth Spalding,	B. A.	7 1-5	<i>Gallipolis, O.</i>
Henry Hall Spencer,	B. A.	6 1-5	<i>Richland.</i>
John Jacob Spencer,	B. S.		<i>East Saginaw.</i>
Nellie Abby Stanley,	B. A.	12 1-5	<i>Ann Arbor.</i>
George Walter Staple,	B. A.	9 3-5	<i>Cleveland, O.</i>
Frances Odell Stebbins,	B. L.		<i>Sheridan, N. Y.</i>
Arthur Kissel Stimson,	B. L. (L.)		<i>Detroit.</i>
Samuel Marston Stocker,	PH. B.	19 4-5	<i>Muscatine, Ia.</i>
Adelbert C. Story,	B. L. (L.)	7 2-5	<i>Greenville.</i>
William Streeter,	B. A.	6 4-5	<i>Quincy.</i>
Jennie Sweetser,	B. A.		<i>Port Huron.</i>
Thomas Carlyle Tate,	PH. B.	12 2-5	<i>Keokuk, Ia.</i>
Alnon Nicholas Taylor,	B. A.	6	<i>Portland, N. Y.</i>
David Gray Taylor,	B. A.		<i>Fenton.</i>
Harriet B. Taylor,	B. A.	12 4-5	<i>Almont.</i>
Charles Edward Temple,	B. A.	4-5	<i>Grand Rapids.</i>
Frank Taylor Terry,	B. A.	12 1-5	<i>Milwaukee, Wis.</i>
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Philetus Roberts Middleworth,	<i>Linden,</i>	H. H. Chase.
Henry Lawrence Miller,	<i>Hastings,</i>	Isaac Dever.
John Johnston Miller, Ph C.	<i>Knoxville, Ill.,</i>	Faculty.
James Finley Moore,	<i>Decatur, Ill.,</i>	S. J. Burnsted.
Addison Morgan,	<i>Detroit,</i>	P. B. Morgan.
Charles Harry Myers,	<i>Ann Arbor,</i>	Faculty.
Charles Henry Penniman,	<i>Oakland, Cal.,</i>	C. B. Bradley.
J. Walter Pennock,	<i>Adrian,</i>	J. Kemberling.
Willis P. Polhemus,	<i>Marshall,</i>	Faculty.
Theodore Oliver Potter,	<i>Whiteford,</i>	Wm. Watts.
Llewellyn Bartlett Richards,	<i>Quincy,</i>	C. E. Smith.
Glenn Arthur Roberts,	<i>Brandon, Vt.,</i>	A. T. Woodward.
Seaver Chauncey Ross,	<i>Towanda, Penn.,</i>	D. S. & D. L. Pratt.
Fred Ruggles,	<i>Lyndon Centre, N. Y.,</i>	W. A. Douison.
Emma Moore Snyder,	<i>Newark, N. Y.,</i>	H. P. VanDusen.
Christopher Howard Skeels,	<i>Lockport, N. Y.,</i>	Faculty.
Emeline Tanner,	<i>Ann Arbor,</i>	Faculty.
Edward Parish Thatcher,	<i>Shortsville, N. Y.,</i>	H. P. VanDusen.
Franklin Russell Timmerman,	<i>Nashville,</i>	H. A. Baker.
Genevieve Tucker,	<i>Nashua, Ia.,</i>	L. M. Tucker.
Frank Harold Tyler,	<i>Three Rivers,</i>	Faculty.
James Waite Vidal,	<i>Randolph, N. Y.,</i>	W. C. Praslee.
Joshua Vought,	<i>Rome, Penn.,</i>	J. H. Spaulding.
Jane A. Walker,	<i>Salem,</i>	A. L. Walker.
James F. Welch,	<i>Ionia,</i>	T. R. Allen.
Jared Wetmore,	<i>Grand Rapids,</i>	Dr. Willett.
Ashley Jay Williams,	<i>Ann Arbor,</i>	Faculty.

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OF  
The Dental College.

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# STUDENTS.

---

NAME.	RESIDENCE.	PRECEPTOR.
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William Berry Armendt,	<i>Owensboro, Ky.,</i>	J. H. Taylor.
George Post Ashton,	<i>Warrensburg, Mo.,</i>	G. C. Shepard.
Wilbert George Bean,	<i>Detroit,</i>	A. Ames.
Thomas Wesley Beckwith,	<i>Sycamore, Ill.,</i>	O. H. Smith.
Henry Franklin Billmeyer,	<i>Brooklyn,</i>	S. R. Nicknin.
Uriah Dildine Billmeyer,	<i>Tecumseh,</i>	Faculty.
Albert Victor Bills,	<i>Oakland, Cal.,</i>	Faculty.
William Fairman Bradner,	<i>Bedford,</i>	B. F. Miller.
Ephraim David Brower,	<i>Ackley, Ia.</i>	J. K. Morris.
George Hart Brown,	<i>Romeo,</i>	E. A. Stebbins.
Charles Robert Calkins,	<i>Perry, N. Y.,</i>	C. G. Bartlett.
David Ethelbart Callaghan,	<i>Yokohama, Japan,</i>	J. B. Brown.
John Peter Carmichael,	<i>Rockford, Ill.,</i>	B. J. Kellogg.
Fred Bower Clapp,	<i>Lena, Ill.,</i>	Faculty.
Suel Erastus Clark,	<i>Fredonia, N. Y.,</i>	L. P. Kingsley.
Edward Carroll Conduct,	<i>Dover, N. J.,</i>	Faculty.
George Henry Corey,	<i>Bristolville, O.,</i>	F. C. Corey.
Henry C. Corns,	<i>Detroit,</i>	W. Walton.
George Coughlin,	<i>Liberty, Ind.,</i>	J. L. Grove.
Lewis Crain,	<i>Erie, Penn.,</i>	W. E. McGill.
Hiram De Puy,	<i>Pittsburgh, Penn.,</i>	M. De Puy.
Williams Donnally,	<i>Georgetown, Ky.,</i>	Practitioner.
Henry Edgar Dunn,	<i>Meadville, Penn.,</i>	Cyrus Lee.
Charles Albert Eckert,	<i>Trenton, O.,</i>	Faculty.
Alban Vaughan Elliott,	<i>Washington, D. C.,</i>	G. Thomas.
Almos Elias Eminger,	<i>Germantown, O.,</i>	B. B. Stevens.
Fred N. Emrick,	<i>Germantown, O.,</i>	George L. Payne.
Orion Jonathan Fay,	<i>Flat Rock,</i>	Faculty.
Alma W. E. Fuellgraff,	<i>Elmshorn, Holstein, Germany,</i>	Faculty.
Stephen Humbert Gerow,	<i>St. Johns, N. B.,</i>	J. F. Thompson.
Frank F. Hoyer,	<i>Lockport, N. Y.,</i>	C. Watts.
Alfred Wright Hoyt,	<i>Fond du Lac, Wis.,</i>	A. L. Hoyt.
Margaret Humphreys,	<i>Yellow Springs, O.,</i>	G. L. Paine.
Mulford Schuyler Hunter,	<i>Detroit,</i>	C. H. Land.
Ormand Courtland Jenkins,	<i>Ann Arbor,</i>	W. H. Jackson.
Aaron Churchill Johnson,	<i>Leslie,</i>	J. S. Möffitt.
Augustus C. Johnson,	<i>Fenton,</i>	J. N. Collins.

NAME.	RESIDENCE.	PRECEPTOR.
Edward Lincoln Kellogg,	<i>Atchison, Kan.,</i>	W. H. Shultz.
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Henry Fairbanks Kimball,	<i>Chicago, Ill.,</i>	Z. P. Haskell.
Jennie Catharine Kollock,	<i>Chicago, Ill.,</i>	F. W. Brophy.
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Frank Flavius Little,	<i>Bristolville, O.,</i>	T. M. McCabe.
John James Little,	<i>Keeperville, Penn.,</i>	F. F. Little.
Amos Marion Long,	<i>Monroe,</i>	D. S. Quickel.
Ira S. Loomis,	<i>Mexico, N. Y.,</i>	H. H. Dobson.
Charles Maclean,	<i>Ann Arbor,</i>	W. H. Jackson.
Ossian C. Moon,	<i>Richland, Ind.,</i>	J. W. Jay.
Guy Hamilton Morgan,	<i>West Bridgewater, Penn.,</i>	J. G. Templeton.
Arthur Clayton Nichols,	<i>Ann Arbor,</i>	W. W. Nichols.
Adelbert Thomas Olmsted,	<i>La Salle, Ill.,</i>	J. F. Mariner.
Charles Upton Patrick,	<i>Terre Haute, Ind.,</i>	Bartholomew & Hall.
Clarence Doolittle Peck,	<i>Kent, O.,</i>	J. C. Merritt.
Denton E. Peterson,	<i>Waterloo, N. Y.,</i>	C. D. Hoyt.
Evelyn Pierrepont, Licentiate,	<i>Manchester, England,</i>	Practitioner.
Royal College Surgeons Ireland.		
Douglas Potterf,	<i>Defiance, O.,</i>	J. S. Scott.
William John Poyser,	<i>Canton, O.,</i>	A. J. Douds.
William Henry Priestman,	<i>Neponset, Ill.,</i>	Faculty.
Rush Minor Putnam,	<i>Palatine, Ill.,</i>	E. W. Olcott.
John Nelson Reynolds,	<i>Lanesboro, Penn.,</i>	H. Pennepacker.
Collins McKnight Roe,	<i>Ontario, O.,</i>	S. Wadner.
Henry Horace Rogers,	<i>Fairbury, Ill.,</i>	Faculty.
Ira Emmit Sampsell,	<i>Columbiana, O.,</i>	H. A. Sampsell.
William Wilson Shryock,	<i>New Era, Ind.,</i>	Faculty.
Charles J. Siddall,	<i>Oberlin, O.,</i>	D. P. Siddall.
Malcolm Sinclair,	<i>Ann Arbor,</i>	Faculty.
Charles A. Sipe,	<i>Galion, O.,</i>	V. H. Reisenger.
Arthur Everett Smith,	<i>Jamestown, N. Y.,</i>	E. H. Danforth.
Willard Judson Spencer,	<i>Le Roy,</i>	Faculty.
Immer Crittenden St. John,	<i>Winona, Minn.,</i>	W. F. Lewis.
Charles Edwin Stroud,	<i>Sandusky, O.,</i>	C. T. Stroud.
Maurice James Sullivan,	<i>San Francisco, Cal.,</i>	L. L. Dunbar.
John Silvers Tucker,	<i>El Paso, Ill.,</i>	M. H. Patten.
Alvin Ellis Unger,	<i>Adamsville, Penn.,</i>	F. H. Whiteside.
Oliver Stacy Voak,	<i>Watkins, N. Y.,</i>	W. A. Spence.
Julius Charles Waldron,	<i>Brimfield, O.,</i>	W. J. Caris.
Howard S. West,	<i>Vershire, Vt.,</i>	S. Gustin.
Wilbur Silvius Whisler,	<i>Tiffin, O.,</i>	J. W. Hayford.
R. Clark Williams,	<i>New Philadelphia, O.,</i>	T. Williams.
Frank Duane Wilson,	<i>New Lisbon, O.,</i>	Dr. McLean.
Lawson DeForest Wood,	<i>Malone,</i>	Faculty.
Robert Addison Young,	<i>Romeo,</i>	I. Douglas.

# SUMMARY OF STUDENTS.

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## DEPARTMENT OF LITERATURE, SCIENCE AND THE ARTS.

RESIDENT GRADUATES.....	13
CANDIDATES FOR DEGREES.....	387
STUDENTS NOT CANDIDATES FOR DEGREES .....	48— 448

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## DEPARTMENT OF MEDICINE AND SURGERY.

STUDENTS—TOTAL IN THE DEPARTMENT.....	350
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## DEPARTMENT OF LAW.

SENIORS.....	180
JUNIORS.....	215— 395

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RESIDENT GRADUATE.....	1
SECOND YEAR.....	33
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## HOMŒOPATHIC MEDICAL COLLEGE.

STUDENTS—TOTAL IN THE COLLEGE.....	70
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## COLLEGE OF DENTAL SURGERY.

STUDENTS—TOTAL IN THE COLLEGE.....	83
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# SUMMARY BY STATES,

## AND IN DEPARTMENTS.

STATES AND COUNTRIES.	Resident Graduates.			Total in the Literary Department.	Department of Medicine and Surgery.	Department of Law.	Pharmacy.	Homoeopathic Medical College.	College of Dental Surgery.	Total in the University.
	Undergraduates.	Select.								
Michigan.....	5	251	30	285	139	121	43	34	19	642
Ohio.....	1	19	1	21	34	67	7	3	19	151
Illinois.....	1	34	4	39	15	47	5	2	10	118
New York.....	14	2	16	37	17	7	13	8	98	
Indiana.....	1	21	3	25	21	36	3	1	4	90
Pennsylvania.....	5	5	5	19	20	1	7	7	59	
Iowa.....	2	10	1	13	7	12	3	1	1	37
Ontario.....	1	1	2	13	7	1	4	1	27	
Minnesota.....	2	2	2	8	12	2	1	1	26	
Missouri.....	1	3	1	5	7	6	3	1	22	
Wisconsin.....	10	1	10	6	3	1	1	1	21	
Kansas.....	1	1	2	3	9	1	1	1	16	
Massachusetts.....	3	3	3	8	2	1	1	1	14	
Vermont.....	.....	.....	.....	5	5	.....	1	1	12	
California.....	.....	1	1	1	2	.....	3	2	9	
Kentucky.....	.....	2	2	.....	3	1	.....	2	8	
Oregon.....	.....	.....	.....	2	6	.....	.....	.....	8	
New Jersey.....	.....	.....	.....	3	3	.....	.....	1	7	
Connecticut.....	.....	.....	.....	3	2	1	.....	.....	6	
New Hampshire.....	.....	.....	.....	1	3	.....	.....	.....	4	
Colorado.....	2	.....	2	1	1	.....	.....	.....	4	
Texas.....	4	.....	4	.....	.....	.....	.....	.....	4	
Maine.....	.....	.....	.....	1	2	.....	.....	.....	3	
Arkansas.....	2	.....	2	1	.....	.....	.....	.....	3	
Mississippi.....	.....	1	1	.....	2	.....	.....	.....	3	
Nebraska.....	1	.....	1	.....	2	.....	.....	.....	3	
District of Columbia.....	1	.....	1	1	.....	.....	.....	1	3	
Maryland.....	.....	.....	.....	2	1	.....	.....	.....	3	
Utah Territory.....	.....	.....	.....	1	2	.....	.....	.....	3	
Washington Territory.....	2	.....	2	1	.....	.....	.....	.....	3	
Alabama.....	.....	1	1	1	.....	.....	.....	.....	2	
Tennessee.....	1	.....	1	.....	.....	.....	.....	.....	1	
North Carolina.....	.....	.....	.....	1	.....	.....	.....	.....	1	
South Carolina.....	1	.....	.....	.....	1	.....	.....	.....	1	
Florida.....	.....	.....	.....	.....	1	.....	.....	.....	1	
Nevada.....	.....	.....	.....	1	.....	.....	.....	.....	1	
Idaho Territory.....	.....	.....	.....	1	.....	.....	.....	.....	1	
Province of Quebec.....	.....	.....	.....	.....	1	.....	1	.....	2	
New Brunswick.....	.....	.....	.....	1	.....	.....	.....	1	2	
England.....	.....	.....	.....	1	.....	.....	.....	.....	2	
Porto Rico, W. I.....	.....	.....	.....	2	.....	.....	.....	.....	2	
Bermuda Islands.....	.....	.....	.....	1	.....	.....	.....	.....	1	
Holstein, Prussia.....	.....	.....	.....	.....	.....	.....	.....	1	1	
Rangoon, Burmah, (Asia).....	.....	.....	.....	1	.....	.....	.....	.....	1	
Japan.....	.....	.....	.....	.....	.....	.....	.....	1	1	
Hawaiian Islands.....	.....	.....	.....	1	.....	.....	.....	.....	1	
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